

YOUR

COMMODORE

AN ARGUS SPECIALIST PUBLICATION

FEBRUARY 1988 £1.20

WEOS—Window operating system



Fontmaster 128—Reviewed

Unbearable Programs! — Screen Score 64 ▲ Relative File Programming
Amending C64 Basic ▲ C64 Morse Tutor

TOTAL BACKUP POWER Now ACTION REPLAY

NOW EVEN MORE POWERFUL, MORE FRIENDLY AND WIL, BA

ONLY
£29.99
POST FREE

Action Replay works by taking a 'SNAPSHOT' of the program in memory so it doesn't matter how the program was loaded - from tape or disk - at normal or turbo speed.

- **WARP 25. THE WORLD'S FASTEST SERIAL DISK TUNING - NOW EVEN FASTER! LOADS 200 BLOCKS IN 6 SECONDS! 240 BLOCKS IN 7 SECONDS!** - that's over four times faster than parallel systems. Built into the controller - no extra hardware or software required. Includes support for tapes, disks, floppies, hard disks. Integrated with normal disk mode for maximum flexibility - data transfer may be normal based on individual load commands or required. Turbo and Warp 25 speed are entirely independent of the controller with WARP25000.
- **SIMPLE TO USE.** Just press the button and make a complete backup - tape to disk, tape to tape, disk to tape, disk to disk. THE PRESS OF A KEYWORKS - JUST ONE KEY BACKUP & NAME.
- **TURBO RELEASE.** All backups will reduce to turbo speed. COMPLETELY INDEPENDENT OF THE CONTROLLER.
- **SPRITE KILLER.** Make yourself invincible. Disable sprite collision - works with many programs.
- **PRINTER DUMP.** Transfer any game and print out the screen. Eg. loading screens, high score screens etc. Works with most printers. MPI 801, 801, 802, 803, Epson etc. Double size, 11 shades, reverse print option. Very versatile - no user knowledge required.
- **PICTURE LIVE.** Live on-line multi-colour access to disk at the peak of a frame. Compatible with Blazing Fudball, Soccer, Archer 80, Image System etc.
- **SPRITE MONITOR.** Enable frame synchronisation allows you to freeze the action and view all the sprites, watch the sprite attributes, view or delete any sprite. Load sprites from one game into another to make customised programs.
- **PAUSE/CLEAR MODE.** Press the button and enter three pulses for extra time etc., then restart the program or make a backup. Ideal for custom games.
- **MULTI-TAPE TRANSFER.** Even transfers multi-tape programs from tape to disk. The extra game load load - a unique feature. Enhancement disk available for use standard multi-loaders (see below).
- **SUPER COMPACTOR.** Ultra efficient program compression technology. Each program saved as a single file - 1 program per disk side - 4 programs per disk. If you use both sides.
- **TEXT SMOOTHY.** Change title screens, high score screens etc. Put your own name into a game then control it or make a backup to tape or disk. Very simple to use.
- **MONITOR.** Full frame Thru-Look type MONITOR CODE MONITOR. All standard features plus many more: assembly, disassembly, hex dump, interrupt monitor, memory, 80, hex number conversion, bank switching, software, software etc. Free on memory. Full printer support.
- **DISK MONITOR.** A special monitor for use on the KROM inside your disk drive. All the usual commands - a useful backing tool.
- **WHOLE DISK COPY.** Copy a full unformatted disk to another two almost with only the drive.
- **FAST FILE COPY.** Works with standard and Warp 25 files of up to 140 blocks. Converts between 1 and from Warp 25.
- **FAST FORMER.** Under 20 seconds.
- **TOOLKIT COMMANDS.** A whole range of useful new commands including: AUTO LIVE MEMBERSHIP, DELETE, MERGE, APPEND, GOTO, LINKUP, etc., PROGRAMS/DELETE - but any program (including directory) directly from disk to printer or screen without occupying memory.
- **RECEIVED FUNCTION KEYS.** Single stroke commands for operation of many programs, commands including: LOAD, SAVE, DISK, local from directory - no need to type in commands.
- **TAPE TURBO.** Designed to make turbo loaders for your own programs. No screen blanking during loading.

REMEMBER all features are built in and available at the touch of a key. All features work with both TAPE and DISK. (Except multipart transfer & disk file utility).

ENHANCEMENT DISK

Contains software for transferring many of the less standard multi load games from tape to disk. Over 100 titles. Latest additions are LAST HERO, ROAD RUNNER (rotational load option), BLOCK 'N' GOLF (play any course), DECEPTION (SMB/SMB2/SMB3 EXEC) and WORLD CLASS (BRIDGE GOLF, DEAD, MORN, THUNDER GOLF).

Improvement, TURBO - view all the planets (including CHANGING GAME), FUTURE GAMES, ENHANCED LAST N and G. LAUNCHER, INTERACTIVE etc. Works in conjunction with ACTION REPLAY.

Also includes GRAPHIC BROWSEVIEW for displaying pictures saved with ACTION REPLAY. Plus many 25 improvements - see Action Replay manual for details of their support in Turbo (multiple programs in use) what they have been doing.

IT TAKES A QUANTUM LEAP SYMK IV HAS ARRIVED!

FOR
CBMG-4/128

WILL BACKUP MORE PROGRAMS THAN ANY RIVAL UTILITY.

**BUT THAT'S NOT ALL ... NOW AVAILABLE FOR THE SERIOUS PROGRAM BACKER
ACTION REPLAY IV 'PROFESSIONAL'**

● All the features of the normal Action Replay IV but with an amazing on-board LSI LOGIC PROCESSING CHIP.
Plus 32K operating system ROM and 8K RAM CHIP. The best ROM/ROM based cartridge of its type!

ALL THE MK IV FEATURES PLUS ...

● **FULLY INTEGRATED OPERATION.**
The MK IV 'Professional' has all the features of the MK IV plus an on-board custom LSI LOGIC PROCESSING CHIP that integrates the whole range of utilities and makes them available at the press of a button at any time.

● **EXTENDED MONITOR.** The 'Professional' has an ultra powerful machine code monitor. Because it has both ROM and RAM at its disposal the Professional can trace any program and then examine the **WHOLE OF COMPUTER MEMORY** in its trace state including screen RAM, ZERO PAGE and STACK.

Full feature disassembly, compare, GDB, creative, hex, octal, binary, jump etc. etc. In fact all the features of the base fully blown monitor available. Return to the frozen program at the press of a key at the point you left it. An absolute must for the program hacker - or even the programmer who needs to do-debug his program.

● **INTELLIGENT HARDWARE.** The Professional hardware is unmatched anywhere in the world today. The special logic processing chip can cope with protection methods as they appear by reacting to its environment.

MK IV
PROFESSIONAL
ONLY **£34.99**
POST FREE

WRMP 25
Saves on
average 50% OF
in 4 seconds!

UPDATE INFORMATION

ASK US FOR THE MK IV. Now only £5.99 and we will send you the new 100 000 CP ROM for only 99c. **PROFESSIONAL**. Load your software plus £24.99 and we will send you a new Professional MK IV. We'll also include the new 100 000 CP ROM for only 99c. **PROFESSIONAL**. Load your software plus £24.99 and we will send you a new Professional MK IV. We'll also include the new 100 000 CP ROM for only 99c.

PERFORMANCE PROMISE

Action Replay will backup any program that you enter other than those you backup yourself. It may take a moment or two to backup. Before you buy check our company web site or call us at 01823 333333 or see our copy of the Action Replay MK IV. We'll also include the new 100 000 CP ROM for only 99c.

ALL ORDERS NORMALLY DESPATCHED WITHIN 48 HRS HOW TO ORDER ...

BY PHONE



01823 333333

Or by Mail Order Form

BY POST



Postage Free

Postage Free

EUROPEAN ORDERS

ADD 10% TO
ORDER TOTALS
FOR ALL EUROPEAN
COUNTRIES
EXCEPT SWITZERLAND
AND AUSTRIA

DATEL ELECTRONICS

UNIT 04, DEVENBY ROAD, TINTON INDUSTRIAL ESTATE,
TINTON, STOKE-ON-TRENT.

SALES ONLY
01823 333333

TECHNICAL ONLY
01823 333333



Editor: Stuart Cooke
 Assistant Editor: Sue Joyce

Advertisement Manager: Stuart Taylor
 Advertisement Copy Control: Laura Champion
 Originations: Ebony
 Typesetting: Ebony
 Design: Argus Design Studio

Your Commodore incorporating Your 66 is a monthly magazine appearing on the first Friday of each month. Your 66 is published every second month within the pages of Your Commodore. Argus Specialist Publications Limited Editorial & Advertisement Offices, Your Commodore, No 1 Golden Square, London W1R 3AR. Telephone: 01-457 8026 Telex: 850152B.

Subscription rates apply application to Your Commodore Subscriptions Department, Inform Ltd, 3 River Park Estate, Fawkhamstead, Herts, SG7 1JL.



REGULARS

- *Data Statements* 6
- *Game of the Month* 10
Airborne Ranger.



- *Comms. Corner* 18
 Keep up to date with the comms. world with David Janda.

- *The ICPUG Column* 32
- *Games Reviews* 41
 The latest round-up of games.



- *J.Q.* 58
 For the intellectual challenge check our reviews.



- *Competition* 64
 Win a copy of The Hunt for Red October from Grand Slam Entertainment.

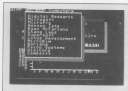


- *Software for Sale* 76
- *Listings* 83
- *Book Reviews* 81
- *Back Page* 106

6	10	18	32	41	58	64	76	83	81	106
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●

FEATURES

- *Fontmaster 128* 15
The ultimate wordprocessor.
- *Amending 64 Basic* 20
Upgrade your computer's vocabulary.
- *Through the Round Window* 26
Powerful window operating system.



- *Relative File Programming* 46
Learn the correct way of using relative files.
- *Compilations* 73
Pick the best of the bunch.

GAMES AND UTILITIES

- *Astrocyd's Saga* 24
Part two of our educational adventure.
- *Ultra Function Keys* 37
String instructions using function keys.
- *INPUT Clean Up* 54
Impress the INPUT on your C128.
- *Reveal Your Characters* 56
Getting sprites to work for you.
- *Adventure Kit* 69
Part two of our series looks at the role of the parser.
- *Morse Code Tutor* 71
The easy way to learn Morse code.
- *Get the Point* 82
Joystick driven pointer for C64 owners.

ARGUS
PRESS
GROUP

DON'T FORGET

AMIGA

INSIDE
NEXT MONTH'S
ISSUE

VOLUME 4
NUMBER 5

The contents of this publication including all articles, designs, drawings and programs and all copyright and other intellectual property rights therein belong to Argus Specialist Publications Limited. All rights reserved by the Law of Copyright and other intellectual property rights and by virtue of international copyright conventions are specifically reserved to Argus Specialist Publications Limited and any reproduction requires the prior written consent of the Company. ©1987. Distribution: NM Distribution, 14-15 Trinity Gardens, London W9 9JL. Printed by Chase Web, Plymouth. Opinions expressed in reviews are the opinions of the reviewers and not necessarily those of the magazine. While every effort is made to thoroughly check programs published for review we cannot be held responsible for any errors that do occur.

ISSN
0269-8277

DATA STATEMENTS

Commodore's Golden Girl

Tessa Sanderson's bid to retain her Olympic Gold Medal is being fully backed by her new sponsors Commodore Business Machines in a deal inspired by actor and in-pop star Adam Faith.

Sanderson's success in the jinxed event at the 1984 Olympics has led to several television appearances which she has squeezed in amongst her many sporting commitments. It was her role in promoting sports in schools that attracted Commodore's managing director, Steve Franklin, to consider the sponsorship move.

"We want to help Tessa in her efforts to retain the gold medal she won in Los Angeles and in return, hopefully, we shall benefit from the

mass media coverage she attracts. In addition to this, Tessa does a lot with schools by promoting sports education. Schools, colleges and universities are very much a target area for us and Tessa will be helping us in our headhunts which will visit UK educational establishments throughout the year."

When the Seoul Olympics appear on television later this year, keep your eyes peeled for the Commodore logo which Tessa has promised to wear whenever she appears in public.

By Dr. Adam Faith, Bob Cox, Tessa Sanderson and Steve Franklin.

Good Buy APS

In a show of total confidence, Stephen Hall, Managing Director of Argus Press Software, has successfully concluded a management buy-out of the Company after several months of negotiations. The deal was clinched when Hall bought the whole of the issued share capital from its previous owners, the Argus Press Group.

As the new Chairman and Managing Director, Hall does not anticipate any great changes in the near future apart from a change of address from the Argus Press offices in Victory House and a change of company name to Grand Slam Entertainments.

The buy-out includes all of the APS assets and liabilities, including the back-catalogue, current stock, products under development and associated licences. The trading names Labolution, Mind Games and Grand Slam were also part of the deal.

Hall has bought the Company at a time when it has never looked stronger with products such as Red October and the arcade megahit Paillard poised for release.

Over the past 15 months there have been several additions to the staff at APS. Product Manager, Peter Stornand joined Hall's team from Activision and Duncan Lowthian, Sales Manager, was previously with Microdealer. In an advisory capacity, Tony Kavanagh, ex-Griffin Graphics, also lends his support and experience to the Sales Department as well as running his own company.

Despite the trials and tribulations of APS, accountant Andrew Noble has weathered the storm since 1982 and is duly awarded the extra responsibility of Director and Company Secretary of Grand Slam Entertainments.

Last but not least is Cathy Elliott, Hall's Personal Assistant, who has the Herculean task of keeping the administration running smoothly.

As a part of the Argus Group, Your Commodore bids APS a fond farewell and wishes Grand Slam Entertainments every good fortune in the future.

Franklin:

Grand Slam Entertainments: Victory House, Leicester Place, London WC2N 2NL. Tel: 01-439 6666.



The Grand Slam Team (l-r): Back Row: Tony Morrey, Steve Franklin, Peter Stornand, Bob Cox (Holding), Duncan Lowthian. Front row: Cathy Elliott, Stephen Hall, Andrew Noble, Rocky Martin.

Stand and Deliver

If you have to move your printer from station to station, Building Computer Services have the answer in your papers in the form of a Mobile Printer Stand.

The unit is strong enough to take the kind of wear and tear that an office environment dishes out but the strength is tempered with lightness. The simple design features a split, one-size, steel top tray and non-slip adhesive rubber mats big enough to take either 80 or 132-column printers. Down below there is plenty of room for a stack of tractor-feed paper and a wire framed collection basket.

The units are finished in brown and synthetic with lockable forward castors. The price is £119 + VAT.

Supplier:

Building Computer Services: Pitman House, 87-89 Wood Street, East Nelson, Leicestershire LE9 7BE. Tel: 0453 49611.



Building's Mobile Printer Stand

Focus on Germany

A West-German order for 12 million of its 'High Focus' floppy disks has established RPS as market leader in the largest disk market in Europe - adding to an established reputation as a major force in the French, Italian, Belgian, Norwegian and Spanish markets.

As holder of the marketing rights in the Commodore label in West Germany, RPS has signed the lucrative contract with disk wholesalers, Bateria. The deal was struck despite intense competition from German manufacturers but Bateria was especially looking for a supplier who would not be a competitor in the home market.

The 'High Focus' product range also accounts for 10% of the British market and RPS is keen to increase supplies from its factory based in ABB, France.

Supplier:

RPS: High Street, Moulton Park, Rugby CV3 9JL. Tel: 0582 857222.

Commodore/Commodore House, The Switchback, Gardner Road, Malvern, Worcestershire WR1 7BA. Tel: 0623 778088.



The RPS Commodore High Focus Range



The MCS Computer buffer

Music to your Ears

Students studying for Music Grade Examinations 1-5 can practice for their oral tests with the aid of Aural, a musical program from Perfect Fourth Software.

Faithfully following the syllabus of the Associated Board of the Royal Schools of Music, the program is aimed at all serious instrumentalists or singers and includes a module which shows how to conduct in time to music. The program contains 280 tests, chosen at random, and eliminates the need to enlist the aid of a pianist to help you practice.

Perfect Fourth are taking great pains to underline the fact that this is not just another composer program. It has been designed to avoid the need for specialist computer skills and the specially commissioned fast loader from Trilogic enables an full memory load to take place in just over a minute from tape or 17 seconds from disk.

Supplier:

Perfect Fourth Software: 11 Homewood Lane, Pinner End, Brentford, Middlesex UB9 2JL. Tel: 04427 6311.
Trilogic: Unit 1, 25th Ave Works Road, Low Moor, Bradford BD11 9AP. Tel: 0774 691111.

The Missing Link?

The Comprint buffer interface from Micro Control Systems offers more than just an 8K buffer.

Connecting Commodore machines to non-CBM printers can be a headache but Comprint offers all of the necessary hardware to link the CB4 and C128 to Canon and Epson printers. The device is easily installed inside the chosen printer and provides all the necessary connections for linking into the computer's serial port.

Once connected, Comprint will convert all of the Commodore's output into standard ASCII format and also allows access to the special features of the printer.

The prices are £24.99 for the 8K Epson unit and £44.99 for the Canon. Special reductions are on offer for the 2K buffer units and the new prices are £19.99 and £39.99 respectively.

Supplier:

Micro Control Systems: Elvaston House, Bridge Street, Sandhurst, Northampton NG10 3BA. Tel: 0602 367264.

DATA STATEMENTS

The Big VC Binder Offer

All Year Commodore we've fallen victim to our own success. As the number of features and advertisements have increased over the past year, so has the number of pages been increased to cope with them. A few avid readers upon Christmas filing away their previous magazines and have pointed out that the Four Commodore binders no longer take a full year's magazines.

After pondering the problem for a few minutes, some bright sparks at our Reader's Services Department came up with the perfect answer - make BIGGER binders! The miracle of the whole scheme is that they're still the same price and the same high quality

but make sure that your order states that you want the 1987/88 size.

As a New Year Goodwill to All Persons move (and to shift the backlog of smaller binders) we are pleased to announce a special bargain offer. As long as stocks last, we are offering three of the old style binders for the price of two - after all you can always use them to usefully camouflage that embarrassing collection of knitting patterns or as an outdoor Filofax for exhibitionist Yuppies. OK, yeah!

If you want to take advantage of this limited offer, mark your envelope VC BINDER OFFER, enclose your cheque or postal order for £1.99 (for three binders) made payable to ASP

Ltd and don't forget your name and address. Send your order to Reader's Services at the Touchline address at the end of this news item.

If you want the big binders mark your envelope VC 1987 BINDER and follow the instructions above remembering that each binder only costs £3.95.

Enjoy but please allow 28 days for delivery.

Touchline:

Four Commodore Reader's Services: 9 Ash Road, Holford Wood Estate, Hemel Hempstead, Hertfordshire HP2 9NW.

Gateway Changes

Readers wishing to contact the Gateway Computer Club should note the new address and phone number given in our Touchline. Gateway has a membership of over 150 computer users and organises events at the Bob Hope Recreation Centre, R.A.F. Mildenhall, Suffolk on the third Sunday of every month. Specialist groups such as Commodore users have their own meetings at other times during the month.

The current membership fee is £7 per annum and this entitles you to receive a monthly issue of the 28 page Gateway Gazette. Anyone who requires further information can drop a line to Phil Harbort at the Touchline address.

Touchline:

Gateway Computer Club: 1644 Redgrave Road, Ladbroke, Suffolk. Tel: Evesoft 2383.

Amiga News

New Amiga software and hardware is appearing daily. The new beta card here isn't too large enough to support any major British developments but the interest in acquiring British rights for American products is encouraging news.

The Amiga market is still growing and 1988 looks like being a good year if only something can be done about the price of the software.

The latest news from America is that the Scribble! wordprocessor, Analyt! spreadsheet and Organise! database have all been combined in a single package called The World As a

Vice Goes to Press

Tynesoft have recruited the services of leading sports commentator, David Vice, to write the introduction to the booklet which accompanies the Winter Olympics 88 competition.

Vice has been connected with the Winter Olympics for the past 20 years and his BBC programme, *Ski Sunday*, recently celebrated its tenth anniversary from the Winter Games location in Calgary.

Tynesoft are also inviting a lucky winner to enjoy a holiday for two at the Winter Olympics. All you have to do is to buy the game and place in order of importance eight qualities which are required of a *Not Skiing* athlete.

The game is available now for the C64, C16/Plus! and the Amiga.

Touchline:

Tynesoft: Addison Industrial Estate,

Blissdon upon Fyne, Fyne and Wear NE17 4YE. Tel: 091-414 4517.



David Vice - probably the most successful commentator in the World.

business package, this forms an attractive starter kit.

Publisher Plus is an upgrade of Publisher 1988 which now includes Postscript laser printer support software and it is currently being sold at a lower price than its predecessor.

For business or leisure presentations, TDShow from Zeta Group can help the Amiga owner to put together a sophisticated slide show or live video presentation. Over 40 different wipes can be used to phase one image out as another is placed in on a timed basis or remote control.

Write & File is the latest

WYSIWYG wordprocessor with an integrated database, mail merge facility and spell checker. There is a wide range of fonts available in a variety of styles to give a professional look to your documents.

Further information on any of these products can be obtained from Brown-Wagh Publishing in California.

Touchline:

Brown-Wagh Publishing: 2670 Lark Avenue, Suite 203, Los Gatos, CA 95032 USA. Tel: 650-498-3923 9462.

DIMENSION computers l.t.d.

27/29 High Street
Leicester LE1 4FP
Tel: (0533) 517479/21874

THE MIDLAND'S LARGEST COMPUTER STORE

COMMODORE 128 and Plus 4 COMBINED PACK

Sales/Purchase Manual, editors with including and Disk Control, Disc £24.95

"Very easy to use — probably the most useful package I have come across."
— Commodore User

VIDEO		
Monitor 12.8 84	£39.95	£79.95
Monitor 12.8 100	£39.95	£79.95
Monitor Cassette 128	£39.95	£79.95

PERIPHERALS

Superdisk 84	£69.95	£49.95
Superdisk 84+14	£69.95	£39.95
Superdisk 84		
8 Superdisk 84	£399.95	£79.95
Superdisk 100	£39.95	£79.95
Superdisk 128	£39.95	£39.95
8 Superdisk 100	£399.95	£79.95
Superdisk, The Book		£71.95

GEOS Version 1.0

COMMODORE Operating System including Desktop, Windows, Graphics, and Disk Accessories, Disc
 COM14 £26.95
 COM16 £24.95

GEOS 2.0 DESK PACK

Combined Database with powerful Mailmerge function. Also contains Art/Graphic Objects, Images, Calendar and text Editor £14.95

GEOS40 £26.95
 GEOS16 £24.95

GEOS40

Local-based Spreadsheet £24.95

BASIC DISK DRIVE

The above includes GEOS2, plus either:
Software Pack A
 8 Adventure Games plus 4-Disc Arcade Games,
Software Pack B
 Quick Brown Fox Wordprocessor, Easyfile Database, and Future Financial Planning Package £109.95

SCRAMBLE OC 1000

Commodore Compatible Disc Drive
 • Fast, Quiet Operation • 11MB Storage
 • Rugged, Lifetime Construction • Fully Color 128 Compatible
 • External Power Supply Eliminates Heat Build-Up
 • Durable, Reliable Operation £129.95

including GEOS2, plus either:

Software Pack A
 8-Disc Adventure Games plus 4-Disc Arcade Games
Software Pack B
 Quick Brown Fox Wordprocessor, Easyfile Database, and Future Financial Planning Package

COMMODORE 128P

Footed Col Matrix Printer, takes 20cm paper £69.95

IMPACT TRACKED UNIT

..... £29.95

COMMODORE EXPANSION SYSTEM

Including Keyboard, Stylus/pen and Software £75.00

COMMODORE FOR SOFTWARE

For Mac Expansion System, Tape or Disc £29.95

ACTION DISPLAY Mk II

Tape or Disc Back-up Cartridge £29.95

VIDEO BOARD

WITH GEOS2 SOFTWARE, Tape or Disc £29.95

COMMODORE CAN DATA RECORDER

..... £29.95

BLANK DISKETS

Lighten/Graphics Emulation Package, Tape or Disc £24.95

"Powerful, well designed — a really exceptional graphics package"
 — Star Commodore

PRINTER/BOARD OFFER

800/801, 800 Systems £9.95

800/802 & 800/1000 £4.95

800/1001 Multi Strike £3.95

AMIGA RANGE

AMIGA 1000/1200 MONITOR OFFER
 AMIGA 1000 with COMMODORE 1081 HIGH RES COLOUR MONITOR, Mouse, Workbench, Basic and DPAINT Software £799.95

AMIGA 5000/1000 MONITOR OFFER
 AMIGA 5000 with PHILIPS/NEC HIGH RES COLOUR MONITOR with STEREO SOUND OUTPUT, Mouse, Workbench, Basic and DPAINT Software £999.95

AMIGA 5000 PACK 1
 with Mouse, Workbench, Basic, DPAINT, TV Modulator, 40 Disc Storage Box, Dust Cover and 18 Games/Utility Discs £499.95

COMMODORE 1081 HIGH RES MONITOR £229.95

AMIGA 5000 PACK 2
 with Mouse, Workbench, Basic and DPAINT Software £499.95

AMIGA 5000 PACK 3
 with Mouse, Workbench, Basic, DPAINT, Sports/Flag with Baseball, Golf and Football, 40 Disc Storage Box, Dust Cover and 10 Games/Utility Discs £499.95

PHILIPS/NEC COLOUR MONITOR
 High Res with Stereo Sound Output £279.95

AMIGA 1080 2nd Drive £129.95

AMIGA 5000
 Upgrade 1 Mb £119.95

AMIGA 5000/1000 SYSTEM
 AMIGA 5000/1000 COMPUTER with COMMODORE 1081 HIGH RES COLOUR MONITOR including 1 year on site maintenance £1099.95

WRITERS MOBILE SHOP
 Professional full-featured Wordprocessor, integrates with Desktop, etc. £21.95

GEOPULSE/504
 Powerful Geos-based Desktop Publishing System allowing combined Text, Graphic Images and Line Graphics £24.95

FONT PACK 1
 Additional Fonts for Geos £19.95

CONTROLER*
 Geos-compatible Japanese File onto keyboard £12.95

GEOPULSE
 Geos-based Database £24.95

FREE OF CHARGE with PURCHASES OF TWO OR MORE GEOS PACKAGES

GEOSPELL
 Geos Spellchecker £9.95

COMMODORE 1000/1200 PRINTER

High Quality Dot Matrix Printer
 • Near Letter Quality Mode • 100 cps Draft/Print Mode
 • Fusion and Ribbon Ready • Needs no interface
 • Full Two-Year Warranty • 100% Commodore-compatible
 Commodore Version (with COMMODORE 128 Printer Lead) £199.95
 Commodore Version (with AMIGA 1000 Printer Lead) £174.95

STAR 96 10-Dot Matrix Printer

Commodore Version (with COMMODORE 128 Printer Lead) £179.95
 Commodore Version (with Amiga Printer Lead) £124.95
 Commodore 960 Colour Model £179.95
 Philips 96-128 Green Screen Monitor £89.95
 Commodore 96/100 Disc Drive £129.95
 Philips Colour TV Tuner

For use with any compatible monitor including 1201, 800, 900 & 8000
 Commodore LPT8 100 Dot Matrix Printer £79.95
 £199.95

PERSONAL CALLERS AND EXPORT ENQUIRED WELCOME

ALL ORDERS MUST BE PAID BY CASH OR BY CHEQUE ONLY. ALL PRICES SUBJECT TO INFLATION WITHOUT NOTICE

ALL PRICES INCLUDE V.A.T. UNLESS OTHERWISE STATED

To order, either send Payment by cheque or by BACS (if cleared) with bank transfer information. Please allow 7 working days for delivery from most of our UK stock locations.
 Please add 11.5% Goods and Services Tax to all software orders.
 Hardware orders add 10% over retail value, except for power 1200 video Printer ordered £2.00 over retail value.

Send to: Dept. No. MC3, Dimension Computers Ltd., 27-29 High Street, Leicester LE1 4FP
 Tel: (0533) 517479/21874 Fax: (0533) 518000

Item	Quantity	Price
Name		
Address		
Telephone		
Total		

BUY FOUR AND GET ONE FREE!

Airborne Ranger

Here's your opportunity to get in on the action and become a Ranger in Microprose's new release

By Tony Hetherington



Whenever a bridge needs blowing, pipelines need cutting, plans need stealing or people need abducting, the Americans call in their equivalents of the SAS—the Rangers. In the latest all-action simulation from Microprose you are a Ranger, dropped behind enemy lines to take out enemy targets. There are in fact twelve missions that can be attempted in any order, or one after another in the campaign game.

The Airborne Ranger is sent on a variety of missions that can range from a diversion assault to a stealth attack where you mustn't engage the enemy until the last minute. As with

all other Microprose games you have to use your brain as well as your pistols or you'll be cut down in a few minutes.

You can practise each of the missions with any Ranger or create a character that's stored on disk until he's needed to do a job. As your skill increases and missions are completed your Ranger will be promoted from a heady private to the giddy heights of Colonel braced in battle honours such as Commendation medals and even the Congressional Medal of Honor! However, if you're killed in action to doom the character and you must start again from Private.

Each mission begins with the deploy stage in which an



airplane flies over the target area and down to the bottom of the screen where it drops you by parachute into the game. This is a crucial part of the game as it not only gives you a first look at the enemy positions but also allows you to drop three bundles of supplies on your lucky noose.

These supplies contain ammunition for your carbine, shells for your rocket launchers, grenades and first aid kits. If carrying too much equipment slows you down, you must try and drop the supplies when and where you'll need them. Once the parachute opens and you descend to the ground you're on your own until you reach the pickup point which is right at the top of playing area. Ahead of you lay enemy soldiers, your target, machine gun sites, minefields, bunkers as well as hazards such as barbed wire, minefields and proximity mines.

Your first job is to check your equipment and see that by passing a single key you can swap from your standard carbine to a knife for silent snail attacks, rockets to take out bunkers from a distance, grenades to hurl at machine gun nests, buildings or troublesome traps or select a time bomb that can be set with a 5, 10 or 15 second fuse.

These are particularly useful as you can set a bomb with a 15 second fuse as a diversion to draw away the guards from your intended target. Next you should check the map (this also pauses the game so you have time to pick out the information you need) and plan your route taking in account that it's unwise, not to mention unhelpful to walk into: too many bunkers when you could crawl along inside trenches and escape their fire. You should also check where the enemy have land mines and avoid them, as it's all



to easy to step on one and end your game and your career while in a fight with some enemy soldiers.

When you have your route planned you're ready for action. You can move in Airborne Ranger in three different ways as you can walk, run or crawl close to the ground. Running is obviously the quickest way to travel but you quickly tire and must walk or crawl to regain your energy where as crawling is the safest particularly through the trenches and is the best way to creep up on an enemy. However you can't spend the entire mission on your belly as you'll miss the rendezvous at the pickup point. Whatever your mission or your style of attack you will find that you'll improve your chances of success if you plan ahead and deploy tactics rather than the 'blast everything that moves' Rambo-style of play. You will actually creep up on sentries and knife them before they can sound the alarm, you will dive into trenches to escape the fire from a bunker before you aim, jump up and fire then drop down as you take it out with a rocket.



Each mission presents you with a new challenge that will keep your reactions sharp and on target for success. I found the most difficult missions to be the ones in which you must reach the target area without firing a shot. Otherwise this will either put other targets at risk in the mission in which you must disable a SAM site or give the enemy time to get their aircraft airborne giving you no chance to destroy them, or give them a chance to kill the hostages or prisoners before you can free them. In these missions you may only attack with your knife and use stealth as your main weapon to get around the patrols and bunkers. However once you're in the top third of the area you can let them have it.

Sharp graphics and intelligent enemy forces put you in the thick of the action in desert, temperate and arctic but levels in a game that leaves other combat games firing blanks.

Finalline:

Title: Airborne Ranger. **Supplier:** Microprose. **2. Market Place, Troyes, Essex, SS16 3DA. Tel:** 0968 34326. **Mailbox: C64. Price:** £149.95 (US \$19.95).

Originality: 8/10. **Playability:** 10/10. **Graphics:** 10/10. **Value:** 8/10.

HEY AMIGO...

NOW YOU DON'T HAVE TO BE A BANK
ROBBING BANDIT TO AFFORD AN AMIGA!

AMIGA 500

1Mag Disk Drive 640K Colour Stereo Sound

Built-In Speech Synthesiser Multi-Tasking

- FREE Defender of the Crown Worth £29.95
- FREE Goldrunner Worth £24.95
- FREE Juggler Worth £7.95
- FREE Deluxe Paint Worth £24.95
- FREE Mouse Mat Worth £7.95
- FREE TV Modulator Worth £24.95
- FREE Starglider Worth £24.95
- FREE Amiga Technical Disk



£499
ONLY FROM HARWOODS
(Save Over £140)

**NEW! Improved
+Pack.**

AMIGA EXTERNAL DISK DRIVES

COMMODORE 1Mag £299.95 - SAVE OVER £140
COMMODORE 1Mag £299.95 - SAVE OVER £60

BUY A DRIVE NOW & GET
A FREE Hard Disk

AMIGA 2000

with
extra 1Mag Internal Drive FREE
(phone for details)

AMIGA SOFTWARE

and many more

Always in Stock - Phone Now

HARWOODS DUALPACK DEAL

Amiga 500 AND
Monitor

And **ACCESSORIES**
ONLY **£785**
(Save up to £240)

Amiga/Philips Monitor

19 Colour Monitor/Resolution
Plug Straight into Amiga and
Most Other Computers
Tilting Facility Stand/Available
Screen Saver Switch
Stereo Sound

ONLY **£299**
Save up to £180

NOW WITH FREE CONNECTOR LEAD
On All Most Computers.
Please Note Type Before Ordering
BY RETURNABLE COMPRESSOR
BAG. (SEE LEAD FOR INFO.)

Commodore C64 C2N Cassette Unit
Mouseshell Juggler
6-Game Hobby Pack -

Little Computer People
Dandy
Howard the Duck
POL
Prodigy
Molecule Man

Only **£169.99**



**GORDON
HARWOOD
HARWOOD
HARWOOD
HARWOOD**

Computers

12-36 Month H.P. TERMS AVAILABLE

All Prices include VAT (except Audio/Video Cards) & Free
Dept YCD of being in store £3.00 (where Subject to Availability)

69 - 71 High Street Alfreton Derby TEL 0778-836781

Official Commodore Business Centre

Communications Corner

*Greetings commu fans! For obvious reasons things
start to happen in the commu world at this time of the
year so there's plenty of news.*

By David Janda

A massive expansion of MicroLink is promised after a \$1.90 million deal was signed with Telecom Gold. Derek Mearns, managing director of Database Publications which runs the server sold Teac Commodore. "We'd been talking about such a deal on and off for the last two years, but only speeded things up when the possibility of the price increases, since becoming a reality for other Gold users, became apparent."

In the deal MicroLink gets its own Prime 9950 computer which is reputed to be four times more powerful than the Prime 750s which are used on the rest of Telecom Gold.

Database are not saying exactly what new features will be implemented, but in a statement to the press Mearns said, "The new machine will give us much greater flexibility. It will allow us to provide a much faster service, introduce a variable charging structure to meet the different needs of our users, and make possible the installation of many new and exciting features."

Without a doubt, the 512 block diameter transfer charge has put all a lot of potential and existing users of Telecom Gold. Existing users of the MicroLink service will be looking for even greater value for money, and I hope that MicroLink are now in a position to deliver the goods.

Kermit

No, not the little green frog as seen on the Muppets, but a new file transfer protocol instead.

Kermit has been around for a few years, but has always been dwarfed by the very popular XMODEM file

transfer method. However it's now being used more and more here in the UK and public domain versions for all the popular micros are abundant.

Kermit is much more than a means of transferring files from A to B. It consists of a number of commands that allow you to configure your Kermit system in a variety of ways. This enables you to transfer any type of file you care to name.

There are two reasons for highlighting Kermit in this column. First, it's in the public domain which means that it's free of charge, and secondly, networks such as MicroLink are starting to use it.

Getting hold of a copy of Kermit for your Commodore machine, be it Amiga or C64, should present no problem. The Independent Commodore Products User Group (ICPIUG) can supply members with a copy on disk, and I have found a version for the C64 on CompuNet. The "official" distribution centre for Kermit is at Lancaster University.

You can dial up their mainframe and download the HEX files and reconstruct the version on your micro, or send off for a version on disk (check online for details on how to do this).

If you intend to download a version from the University then call the Lancaster mainframe on 0524 62671. Once connected enter "CALL KERMIT", the password is also KERMIT. At the system prompt "P" enter "SELECT C64" or "HELP" or "?" if you need assistance. Entering "SELECT C64" will log you into the directory for the C64 implementation, you can then use commands like TYPE and DIR to list files and directories.

If all this is a bit daunting don't panic! First download the "D90C" file, logoff, then list or print the file. This will not only give you information on Kermit and how to use it, but what files you should have for your particular implementation - good luck.

As mentioned, MicroLink is currently experimenting with Kermit on system 71. I have been trying it out for a few months with varying degrees of success. Basically the implementation of MicroLink will enable you to upload/download files by the text or binary. You could send a program to a friend who lives across the country, or in another country by using email which is handy!

FT

Another file transfer system which is being used on Telecom Gold is FT. This is in fact more other than the popular XMODEM file transfer. At present FT is only available to those with corporate accounts although I believe if it proves to be a success then it will be made available to all Gold users - full details next month.

The Net Gets Musical

A new contributor area should be launched on MicroNet by the time you read this. Called Music City, it will consist of news and features about computer music. One of the main attractions will be releases/ware download files for a variety of machines including the C64.

As we are all aware, there are

hundreds of music demos in the public domain. All the music demos of popular commercial music from records and films is breaking the copyright law, and Microsoft has taken steps to ensure they don't do the same.

"Microsoft has no desire to float the copyright laws", said PR manager David Rosenbaum, "since we have reached agreement with the Mechanical Copyright Protection Society over the matter of computer music files on Microsoft."

What this means is that if a subscriber wishes to submit a music demo of a contemporary song that is not of his or her own, then Microsoft will pay a royalty to the MCPS, thus keeping everything above board.

Phil Gadsell, Microsoft's software manager is inviting submissions from all subscribers, and if the tune is good enough you'll get paid for it as well. Certainly the emphasis is on music produced on the BBC micro, because the Beeb is the largest group of users on the Net. However, as we are all aware the C94 is a far superior machine when it comes to producing debut tunes, so why not submit your own composition?

Hayes Gets Cheaper...

Anglo computers who stock the Enterprise range of modems has submitted a new range of HAYES compatible modems for approval.

Called the Enterprise Turbo range, two models are due for approval next week. Both models support V21 (300/300 baud), V23 (1200/15 and 35/1200 baud) and V23 full-duplex (1200/1200 baud). In the case of the Enterprise II Turbo V23 full-duplex (1200/1200 baud) is also supported.

The modems are full Hayes Smartcom compatible and have a number of extensions. These include a 60 entry user programmable telephone number store with auto 119 and answered facilities, auto-dial, full 5-register display, and if you are connected to the Mercury network the auto-in-dial to said network will be useful.

What's also interesting is the price. The Enterprise I Turbo will cost £149.95 (ex VAT) and the Enterprise II Turbo will cost £299.95 (ex VAT).

...And Smaller!

Digital Matrix, based in the West Midlands, is now importing a rather nifty device called the Discovery £200F Hayes compatible modem. Features include pulse and tone dialing, CCITT and Bell frequency specifications, and 300/300 as well as £200/1200 full duplex operation.

What's so special is the size and price! The modem is just a little larger than a packet of 20 cigarettes and costs only £99 (ex VAT)! It should be noted that currently it's not BAST approved but four Commodore understands that the modem will be submitted for approval.

A full review of the Discovery £200F will appear in a future issue.

Foundies:

Anglo Computer 0978-4321.

Digital Matrix 021-704 1399.

Microsoft 04-278 3943.

MicroLink 050-456 8363.

EVERYTHING FOR YOUR COMMODORE

NEW LOW COST Amiga LEADS

AL 1 for Performance only. **ONLY £18.95**

AL 2 for Speed with 128K RAM. **ONLY £12.95**

AL 3 for Amiga 500. **ONLY £14.95**

AL 4 for Commodore 64K. **ONLY £12.95**

MAKE YOUR TV MONITOR AS GOOD AS THE AMIGA!

AMIGA PRINT LINK ONLY £29.95

CPM / DOS MONITOR AND CONVERSION ONLY £29.95

TRIOLOGIC, Unit 12, 13, 14 New Works Road, Low Price, Bristow, BS41 6DF. TEL: 0844 488695. (Outside London 0704)

Please contact by FAX Colour Catalogue £2

Please telephone: (0844) CPM / DOS CONVERSION
 AL1 AL2 AL3 AL4 AMIGA PRINT LINK

NAME: _____
 ADDRESS: _____
 POSTCODE: _____

NEW FREE

©1989 TRIOLOGIC. ALL RIGHTS RESERVED. ALL INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE. ALL PRICES INCLUDE DELIVERY AND PACKAGING CHARGES.

TELETEXT A world of information at your finger tips

The Microsoft adapter turns your C64 or C128 into a sophisticated Teletext Receiver. Giving you full colour display of any of the free pages from Celexa or Oracle. As well as news and sports results, there is real, real and as found information, what on TV and weather reports. You can get an update on share prices or foreign holidays. And not only does it instant dates for special interests, like computing, motoring, or gardening, but you'll also find things to do and places to go in your area, price comparisons and even your daily horoscope. Plus much, much more. It's a price, says it, we've never seen it before.

A page like a recipe or a weather may be saved to disc or cassette or even printed out and the manual has examples and shows how to access and get Teletext from your own programs, the ability to archive information for local results, exchange rates or weather conditions, provides possibilities limited only by your imagination.

The adapter fits neatly on the rear part of the Commodore. A test goes to the "VIDEO OUT" socket of your video recorder so bring your VCR to its level. It's done! (Overseas add £2.00)

"I wouldn't hesitate to recommend this to anyone!"
 — Your Commodore Jan 87

MICROTEXT TUNER NOW AVAILABLE

Our own Tuner has been specially designed to provide the signal that the Adapter needs, thus eliminating the need for a video recorder. Just plug it in, it's done! It's done! It's done! (Overseas add £2.00)

MICROTEXT

Dept YC, 7 Birley Close, Hemden, Hants, PO8 9PW
 Telephone: 0785 555894

Font Master 128

Could this be the ultimate C128 wordprocessor?

By Stuart Cooke

It is often forgotten that the C128 is an excellent 'work-horse', with a wide range of accompanying business/small business software available. In this article we look at the Font Master 128 which takes wordprocessing on this superb computer a step further.

Font Master 128 not only offers all of the normal facilities that you would expect in a good wordprocessor, such as loaders, footers, changing layout etc, but also over 45 new character sets. These allow the user to print text in styles ranging from Greek to Arabic.

Program Requirements

You can only use Font Master 128 on an 80 column display. C128 users who only have 40 columns will not be able to use the program. The wordprocessor is supplied on two disks, one of which contains the wordprocessor, other utility programs and a few fonts, and the other contains extra fonts. If you are lucky you might also have a 2071 disk drive, both single-sided disks can be copied onto one double-sided disk. It is worth pointing out that the Font Master disks are not protected which allows you to copy the program and place the original disks somewhere safe. However, a simple small circuit board must be placed in the cassette port in order for the program to work.

A setup program is provided so that you can tell the program exactly what type of printer and interface you wish to use with the program. Over 100 different printers are supported together with all of the popular

interfaces. One good feature of this setup program is that it will tell you what switches need to be set on any interfaces in order for it to work with the program. The setup file also tells you what sort of performance you can expect from your printer when used with the package. Obviously a printer such as the Commodore MP5001 will not give as high a standard as something like the Star NL-100.

Entering Text

Font Master 128 is used like any other wordprocessor; text is typed in together with certain codes to specify print styles, layout etc. Most commands are entered through a combination of the CONTROL, SHIFT and Commodore keys. A help facility will show you what keys to press to achieve a certain function.

Combinations of the above keys are used to select commands which include:

- A new font
- A new print style (bold, compressed etc)
- Underlining on and off
- Tell character height
- plus many more.

One extremely useful function for foreign users is the ability to overlay one character with another, i.e. allowing characters with accents to be created. Your printer must support backspacing to make use of this facility.

Formatting

As well as the range of single letter

commands mentioned above, over 50 two letter formative commands also exist. These commands allow you to select such things as: the length of the paper you are using; the size of the margins; turning on justified print; turning on centering; defining the contents of headers and footers; printing in columns; inserting graphics in text; plus many more.

The option of turning on proportional spacing exists together with a special set of tabulation commands that make sure the altered spacing when proportional is on, does not affect the layout of tables, etc. This is great when you want to produce high quality tables.

Pretty Pictures

You may have noticed that the above list of features mentioned graphics. Font Master 128 has the ability to include a picture created from another program within your text. More of this later. The pictures can either be placed in your document with the text running over it or around it. The facility to reverse the picture (i.e. make a negative) also exists. You don't have to use a computer graphic in your text - you can tell the program to leave a blank square of a size that you specify, so that you can stick a picture in from another source.

Newspaper Style

Font Master 128 has the ability to

print in columns, just like a newspaper. The setting up of the column size is left to the user; the program handles everything else. If your printer reverse feeds the paper and automatically moves the paper back to the start of a new column, if your printer doesn't reverse feed then it is up to the user to move the paper to the top of each column.

Input/Output

As you would expect from such a sophisticated package, Font Master 128 offers many input/output facilities. The user can load and save fonts to disk, up to nine fonts can be resident in memory, being up a disk directory, send disk commands, and manipulate text.

Text manipulation commands include the ability to load and save files in both program format and sequential format. The ability to save and load in sequential format allows you to use text that has been produced by other wordprocessors or database programs. Text files can also be merged into existing text files and areas of text, rather than the whole document, can be saved out.

Mail Lists

The ability to use form files also exists within Font Master 128. As an example of a form file let's say that you had the same letter to send to 50 people - the only changes that you require on each letter will be the name and address. With form files you can set up a letter with special codes, indicating where you want information to go. When you print the letter the special codes are replaced by information from a form file, in our case the form file would contain the names and addresses of the 50 people that we want sending our letters to.

Seeing is believing

Once your document is finished it is nice to see exactly what you have done before you commit your print to paper. A video preview option allows you to see the document on the screen just as it would appear on paper, including the changes in characteristics, font, etc.

Foreign Language

Font Master 128 comes complete with a variety of foreign languages so that your pointfont can be in Greek, Russian or even Arabic. One problem with this is the characters for foreign languages do not always correspond to English letters, and the screen display will therefore look rather silly.

Font Master 128 overcomes this problem by allowing you to load a new character set into memory. This means the characters that you see on screen will be the same as those on the printer. Font Master 128 is the only wordprocessor I know that has this facility.

Some foreign languages present even greater problems because they are entered from right to left. For example, Font Master 128 allows you to type in and edit text 'backwards'.

Other languages are even more complicated in that text is written from right to left and numbers are written from left to right. Font Master 128 also makes provision for this.

Going Further

A variety of programs that are supplementary to the wordprocessor are supplied on the Font Master disk. All of these are accessed from a menu which appears when you boot the disk. These already mentioned the simple editor in this article, a graphics converter, font editor and text converter are also provided.

The Graphics Converter allows you to convert a high-res picture of a printshop picture into such a format that they can be used with the wordprocessor. Facilities also exist to make pictures up from a number of

images taken from printshop.

Should Font Master 128 not have a font to suit your requirements, then the Font Converter will solve your problems. This program allows you to design your own fonts for use on the printer and character sets for use on the video screen. The program has a variety of commands for adding fonts (including loading, saving and dumping the fonts to the printer).

Because many people have access to other wordprocessors, a program called the translator. This program allows you to take text from a variety of popular wordprocessors and convert it into such a format that it can be loaded by Font Master 128. If your wordprocessor saves out sequential files then you will not require this option as the wordprocessor will load sequential files without any problem.

Verdict

Font Master 128 is the most powerful wordprocessing package that I have used. It has all of the facilities that you would require from any wordprocessor plus many more that you would never have thought to be possible. An important point worth noting is that you don't have to use the fonts, you can produce printouts in your printer's normal font.

A spelling checker should be available in the near future which will add that finishing touch to the package.

Font Master 128 is the most comprehensive wordprocessor that I have used on the C128, it's also one of the cheapest.

This package is an essential piece of software for C128 users.

Printouts from Fontmaster 128

Extensive text styles are available with Fontmaster 128

You can have Tall letters

Or choose such styles as very small, you have the choice of BOLD text, PICA text or even MINOR text. By highlighting you can distinguish between BOLD and any other style also available.

And of course there are many font styles to see

BLACK letters 17 - 18in
BOLD in new driver
BOLD in new driver
MINOR letters 18in 17in
What do the letters look like
PRINTING with this font
LED letters 18in 17in
and 18in to 18in

Fontfile:

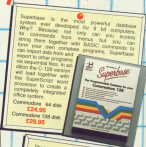
Supplier: Eyal & Pincus, 57 Great Street, Lytham, Lancs PR18 1RN, Folex 149 85.

The most powerful productivity software ever developed for your computer



SuperScript gives you everything you need for professional word processing in one easy to use package. Its menu command structure puts you immediately at ease, with no complicated commands to memorise, yet SuperScript combines business-style editing, spell checking, calculator, row and column arithmetic and full mail merge facilities. The phrase glossary feature enables you to store whole passages of text, or command sequences and recall them with a single key.

Commodore 64 disk **£24.95**
Commodore 128 disk **£29.95**



Superbase is the most powerful database system ever developed for 8 bit computers. Why? Because not only can you access its commands from menus but you can string them together with BASIC commands to form your own complete programs. Superbase can import data from and export to other programs via sequential files. In addition the C-128 version will load together with the SuperScript word processor to create a completely integrated office system.

Commodore 64 disk **£24.95**
Commodore 128 disk **£29.95**



SuperDiskette is the ultimate Commodore disk utility program, and the best protection there is for your valuable data. Zoom in on the bytes on your disk, interpret them in hex, ascii or plain English, make any changes you want, then replace them. SuperDiskette brings you extra security. You know that in the event of an accident to your data you have the best tool available to repair the damage.

Commodore disk **£9.95**



The in-depth guide to using the Superbase system, from first steps through to advanced programming techniques. The wealth of hints, tips and practical examples makes Superbase The Book required reading for anyone working or contemplating working with Superbase.

194 pages **£17.95**

ORDER FORM

Mail to: Precision Software Limited,
8 Park Terrace, Worcester Park, Surrey KT4 7JZ
Please send me:

For Post and Packing wherever in:

Check enclosed Visa Access-Mastercard

Card No. Name:

Expiry Date: Signature:

Name:

Address:

Post Code:

14 Day Money Back Guarantee - Return your package unopened and we will refund your purchase price.

GREAT NEWS FOR ALL PHOTOPLAY READERS!


STARTING WITH THE JANUARY 1988 ISSUE THE COVER PRICE
WILL BE REDUCED TO £1

- * **MORE COLOUR**
of your favourite stars
- * **MORE REVIEWS**
by our top team of critics
- * **CELEBRITY INTERVIEWS**
with the top personalities
- * **SCREEN CHAT**
the latest news and gossip
- * **VIDEO & TV**
more coverage of the
small screen

MEET *ROBOCOP*
THE LATEST MOVIE
SENSATION
IN THE JANUARY ISSUE
ON SALE THE FOURTH
WEEK IN DECEMBER

PHOTOPLAY'S BRIGHTER NEW
LOOK TAKES A LIVELY,
INFORMATIVE VIEW OF MOVIE,
VIDEO AND TV SCREEN ENTERTAINMENT

DON'T MISS OUT – BE IN THE PICTURE
WITH BRITAIN'S BEST KNOWN
SCREEN MAGAZINE!

 **NOW ONLY £1**



GIANT RUTGER HAUER
COLOUR POSTER FREE
WITH THE BRIGHT NEW
LOOK ISSUE!

Preview The Future!

PROJECT: STEALTH FIGHTER



Stealth Fighter... the hottest topic of conversation in aviation circles today. Space Age technology and engineering make these aircraft virtually undetectable by enemy radar. Stealth Fighters are believed to be in operation, flying the most sensitive missions, flown by a superior class of pilot. You can experience that thrill of flying a revolutionary aircraft, pioneering the edge of the future.

PROJECT: STEALTH FIGHTER, Another brilliant simulation from MicroProse. Available for the Commodore 64/128K, Cassette £14.95, Disk £19.95.

MICRO PROSE
SIMULATION + SOFTWARE

Please send _____ copy/ies of Project: Stealth Fighter CBM 64/128 Cassette £14.95 Disk £19.95 Further details.

Name (block capitals) _____ Address _____

Post Code _____

Enclose £ _____ including 55p P+P. Cheques payable to MicroProse Software Ltd.

or debit my Access/Visa card. Expiry date _____ No.

MicroProse Ltd., 2 Market Place, Tetbury, Gloucestershire GL8 8DA, UK. Tel: (0466) 54326. Tlx: 43422 MPS/URG.

Amending Commodore 64 Basic

Various answers can be opened to the Commodore user when commands are added to 64 Basic. Peter Gerrard starts us off with simple background and border colour changes.

By Pete Gerrard

Ever since the Commodore 64 first appeared (and my, what a long time ago that seems to be) people have moaned and groaned about the version of Basic that it was equipped with. They complained of no procedures, which has always struck me as a rather pedantic argument when it takes five hours to search through a twelve page listing in order to find a four line procedure called Free.

At least with a GOSUB 9000 you know where line 9000 is going to be! No structure to the language at all, they would whinge, (ignoring the all-important fact that if a program runs and works, that it works, whether the code is a thing of beauty or something that exhibits the structural qualities of an erigami) butterfly in a thunderstorm. No commands for using graphics and sound, they whine, and there they have, a very valid point, at last.

There are two commands in the Commodore 64's repertoire for manipulating sound and graphics, and these are PEEK and POKE. Even PEEK isn't a great deal of help most of the time, since a lot of the registers used to handle these two admittedly important features of the 64 are write-only. That is, you can POKE things in there but you can't PEEK to see what you've already got. Write-only

memory, or WORM I suppose, can be a bit of a nuisance at times.

Now I'm not proposing surgery to your computer, since the write-only aspect of things can be overcome by judicious use of variables and a little something called logic when you sit down and write your programs.

What we can do, however, is improve the Basic language that Commodore have seen fit to equip us with.

There are many ways of going about this, but in this first article we'll start by taking a look at something that is fairly simple to follow (and implement!). It will give you the opportunity to mull about and alter in whatever way you please, and that leads the way for the greater things that are to come.

Just as you might expect Ed Mosca learnt to walk before he began to run, then to master running before he started leaping about over hurdles (and yes I know he's been beaten at long last) so you too will have to jump in at the shallow end at first. To begin with, what are we looking for from our initial program?

Program Creation

We want to be able to do three things with a new command, and these are:

- 1) Allow Basic to accept a new keyword.

- 2) Allow that keyword to have parameters associated with it.
- 3) Act on the new keyword.

If one or all of these fail to then we will get nowhere, so the first step must be to see how Basic accepts the keywords that it already has, and how we might go about altering things so that it will learn to accept one of our new words as well.

Step One — Character Get Routine

Whenever you type something into your 64, everything is stored in memory as you type, so the first step must be to see how Basic accepts the keyboard buffer. Rather, it is stored somewhere else and (very cleverly) if a Basic keyword is encountered, it is tokenised as well.

In other words, one character replaces the five letters PRINT in the command, or another character might replace the four letters POKE, and so on. A little memory saver, there. All this routine does is you hit the RETURN key, at which point the Commodore 64 has to try and make some sense out of what you've just typed in. To do this it makes use of a routine known as CHARGET, short for CHARACTER GET, and this lives in memory from 8003 to 800A, and looks like this:

```

8003 INC #7A
8005 BNE #0079
8007 INC #7B
8009 LDA #021E
8013 CMP #85A
801E BCS #006A
8020 CMP #E20
8023BQZ #0073
8024 SEC
8025 SBC #E20
8027 SEC
8028 SBC #E20
802A RTS

```

The part that concerns us here is the region from 8004 to 8008, combined with the fact that this is stored in RAM, not ROM (or WROM), which means that we can alter it. So, with the aid of an assembler you might care to type in the following:

```

8C08 SEC
8C09 SBC #E50
8C0A SEC
8C0B SBC #E50
8C0C RTS

```

Or, if you prefer a Basic loader:

```

10 FOR I=9008 TO #411 READ
A:POKE I,A:NEXT
20 DATA 56,23,48,56,23,208,56

```

which would do the job equally well. Now, we can alter CHARGET so that the latter part of it reads like this:

```

888A NOP
888B NOP
888C NOP
8887 JSR #C100
888A RTS

```

or again, if you like a little spot of Basic:

```

10 FOR I=112 TO 137:READ
A:POKE I,A:NEXT
20 DATA 234,234,234,32,00,183

```

Now the routine will do nothing for a while before keeping off to our new machine code sub-routine at location 8C08, which as you've seen, simply imitates the original code that was already in the CHARGET routine. So what's the point of altering it then? So that we can replace the three NOPs with a call to another sub-routine. Before we do that we must learn one or

two other things, and CHARGET routine when altered is not a happy thing unless the code you put in yourself works perfectly, and works perfectly first time.

Commands and Parameters

You're probably all familiar with various concepts connected with entering Commodore 64 Basic. Use of interrupts (POKEing 788 and 789 with our new interrupt location), or the use of internal sub-routines to accept parameters and acting upon them (JSR #B7EE, STS #B020 or wherever is one easy way of doing it). You'll be referred to know that we're going to use none of this.

When you type something in, and CHARGET either accepts it as a valid expression within the framework of Basic, or checks it out as something it's never heard of and probably never wants to hear of, what you have just typed in, is stored in memory. (In location 8020 onwards, in fact, or decimal 512 if you prefer.) Now you can't check this just using Basic, since the contents of these locations obviously alter every time you enter a command to see what's in there, but that is where the information goes, believe me. Check it using interrupts if you want.

Say you want to have something known modestly as PETER for our new Basic keyword. To keep things simple, we'll just change the background and border colours for now, before we get onto more exotic commands later on in this little series. Obviously, then, we'll need to have the command use two parameters for the two colours, in the form PETER A,B. To give a concrete example, how about PETER 1,2? The content of location 8020 onwards, if POKE'd onto the screen, would reveal PETER 1,2 followed by whatever else happened to be in there from any earlier typing of keys.

You begin to see my point. The information is stored somewhere in memory, and it's up to us to dig it out and act on it. Let us, first of all, make sure that Basic will recognise our new keyword PETER. When we are convinced that we have almost won this first, easy, battle in getting the 64 to accept new Basic keywords. We know where the parameters are stored, it then just becomes a question of getting them.

New Keywords

You'll have noted that CHARGET is already diverted to 8C100, and that the little diversion there finishes at location 8C106. Well we'll make use of the space after that to get our new keyword accepted.

To begin with, we'll need to store the values currently held in the three machine code 'variables', otherwise known as the X register, the Y register, and the accumulator. Then, we'll need to look at what is stored at location 80200 onwards and see if the first five characters correspond to PETER.

Then, we can check for the parameters and cause something to happen. This means that we'll have to have a little table stored in memory with our new keyword in it (and when you've added more than one command you'll need to store the lengths of the new words as well, at least you will if you're going to be using this method). Finally, if the word found from 80200 onwards is not a new word then we'll have to retreat to CHARGET to let it get on with its job of sorting out the existing Basic, without worrying itself over anything that we might get up to. The machine code instructions to perform these tasks look something like this:

```

8C107 STX #C0FF
8C10A STY #C0FE
8C10D STA #C0FD
8C110 LDA #800
8C113 CMP #C190,X
8C116 BNE #C122
8C11A INX
8C11B CPY #800
8C11D BNE #C122
8C11F JMP #C149
8C122 LDA #C0FE
8C125 LDY #C0FF
8C128 LDA #C0FD
8C12B RTS

```

In order for this sequence of commands to operate properly we need to have the relevant information stored at location 8C130 onwards, so that the instructions at locations 8C112 and 8C113 can compare what has been typed in and stored at 80200 onwards, with the sequence of values for our new keyword. So, at locations 8C130 to 8C134 we need the hexadecimal values 50, 45, 54, 45, 52,

which together make the letters P-E-T-E-R, as it is in this form that they will be stored at \$C280.

Then, we need some code at location \$C140 onwards, so that the program, having checked for the word PETER and found it present, has something to do to prove to us that this new word has been entered. To keep things simple for now, we might have something like:

```
$C140 LDA #185
$C142 STA $0400
$C145 JSR $A474
```

In Basic loader form, these two sequences of instructions look like this:

```
10 FOR I=49415 TO 49451 READ
A:POKE I,A:NEXT
20 FOR I=49472 TO 49478 READ
A:POKE I,A:NEXT:END
100 DATA
142,215,182,140,254,182,141,253,182,
182,0,1850
110 DATA
2,21,48,199,208,3,232,224,3,208
120 DATA
245,76,84,183,174,255,182,172,254,
182,175,253,182,06
200 DATA
189,181,141,08,04,32,116,184
```

The program works as follows: After storing the values for the X and Y registers and the accumulator, it looks at the value currently held at location \$0280 and compares it with that stored in our table at \$C140. If the two are not equal, it branches out of this check immediately and goes back to CHARGET to get on with the job in hand. If they are equal, then we loop around to check the value currently held at \$0024 against that at \$C131. Again, if they aren't equal then CHARGET is allowed to get a look in, but if they are we continue around the loop until we're comparing \$0204 with \$C124.

If these two are equal then the word that has been typed in matches that stored in memory as our new keyword and program control can branch off to the code starting at location \$C140. This just puts a beam in the top-left-hand corner of the screen, but at least it proves that the command has been recognized. All that remains now is to put some additional code at \$C140 to allow for

parameters, and then to act on those parameters. This is the easiest part of all, since we're only altering the background and border colours.

But first, we must inform CHARGET of what's going on, so we'll have to replace those \$0094 that we put in earlier with something a little more sensible, like this:

```
$0094 JSR $C107
```

or

```
10 FOR I=132 TO 134:READ
A:POKE I,A:NEXT:END
20 DATA 32,0,185
```

Now CHARGET is alerted first of all to \$C107 to check for the new keyword, and if it is found then a program operation is carried out and control returned to the normal Basic 'ready' mode by use of the internal ROM routine starting at location \$A474. Otherwise, back to CHARGET and the routine that has now been copied into locations \$C100 to \$C103 to \$C106, and the 64 can carry on as normal.

The code at \$C140, allowing for parameter passing and acting on those parameters, looks something like this:

```
5 B=0
10 FOR I=49408 TO 49561
15 READ A:POKE I,A:B=B+A
20 NEXT
25 IF B<=21040 THEN PRINT
"Data entered incorrectly — please
check." :END
30 PRINT "All present and correct —
well done." :END
180 DATA
54,233,48,54,233,208,86,142,255,182
185 DATA
182,254,182,141,253,182,182,3,188,8
190 DATA
2,21,48,199,208,3,232,224,3,208
195 DATA
245,76,84,195,174,255,182,172,254,
182
200 DATA
173,253,182,06,255,255,255,88,69
205 DATA
84,69,83,255,255,255,255,255,255,
210 DATA,255,255,255,255,173,5,7
211,32,208
215 DATA,83,173,6,2,141,178,182,
175,7,2
240 DATA,201,48,240,34,185,9,141,
32,208,177
```

```
145 DATA,8,1,201,44,208,33,173,9,2,
141
190 DATA,129,182,175,16,2,201,6,
208,37,173
195 DATA,129,182,141,53,208,12,
196,164,13,128
180 DATA,182,141,52,208,173,8,2,
141,130,182
185 DATA,173,9,2,201,6,208,9,175,
130,192
170 DATA,141,33,208,32,196,164,
185,9,32,848
175 DATA,183,32,248,177
```

You'll notice that we've included the whole code here, rather than just bits and pieces. This explains the presence of some bits that you've already seen. However, it is a lot easier (and a lot less confusing) to say 'type this in' rather than 'type in the bit from that memory location so that one, altering this bit, and changing that to ...'. It might mean a shade more typing, but at least you'll be more certain of getting it working first time!

The command will now accept things like PETER 0,1 for a black border and a white background, or PETER 10,10 for a pink border and a pink background (very nice). I freely admit that the checking for the various parameters is not as robust as it might be, and you might care to take a look at that when you're examining the workings of the whole thing. You might also care to add one or two new commands of your own, but remember that a) commands cannot incorporate existing keywords, so that BORDER for example is not allowed, since it includes the word OR, and b) commands added in this fashion cannot be tabulated, or abbreviated.

In conclusion, this is one way of adding new commands to the C64's repertoire. Next time we'll look at another way of doing things which makes it also easier to add more than just the command, and which doesn't rely on tedious error checking to get the parameters sorted out.

So, until then, your homework (let's look through the usual window children) is to tidy up that error checking, and perhaps add some commands of your own so that you can gain some familiarity with the workings of CHARGET and indeed the Commodore 64. Me? I'm off to watch some of the Test Match. Bye for now!

IS YOUR 128/64 GROWING UP OR GROWING OLD?

1571 FIX ROM

Are you experiencing any of the following problems:-

- I/O Error 5 when using SuperBase.
- Device Not Present errors.
- Major problems when 2 or more files open?
- Painfully slow writing to second side of disks.
- SASE with Replace problems.
- Takes forever to recognize a "flippy" disk.

If you have one or more of these problems then you need 1571 FIX ROM. Simple to install and only **£24.95**. It's fast, the 128, 96 column version of the top selling, award winning GEDS 64. The 128 version includes GEDS Print (68 columns), GEDS Write (84 columns) and Desktop Accessories. **Price Call.**

GED Calc 128, Spreadsheet	£34.95
GED Publish, Desktop Publishing	£34.95
Workshop	Call
GEDS 64/128 mouse	£28.95
GEDS File 128, Database	£34.95
GDSPack	Call
GED Programmer	Call

READ AND WRITE IBM FILES ON YOUR 64/128

New from SOGWAP Inc., The Big Blue Reader CP/4 allows you to transfer files generated on most IBM-Compatible (MS-DOS) software to all three operation modes of the Commodore 128 and vice versa. Thus, files can be transferred from IBM MS-DOS, 128 and CP/4 disk formats, with optional ASCII translation. You may no longer be disc-auged because your C128-based MS-DOS disk compatible, or that your C128 CP/4 disks are not industry standard. The program which runs in C128 mode, is available for **£29.95**. Detailed information is available on request.

•• New Little Blue Reader for 64 Users ••

New 3 1/2" Disk Drives

The NEW Commodore 1581 1 Megabyte disk drive is now available. The NEW 3 1/2" disk drive is compatible with most commercial software and will operate on the Commodore 128, 64C, Plus4, C128 and VC-20. The 1581 offers the professional user, 800k formatted disk capacity, (1200 Bytes Free), 8,000 Bytes per second transfer rate and sub-directories. **ALL FEATURES AVAILABLE TO ALL COMMODORE COMPUTERS.** Commercial software available includes HackPack, Patapack, Oxford Passat, Fastmaster with Spellmaster, CADPAK and Chartpak. Drive is available by mail order for only **£19.95**.

Commodore 128 Diskette	£399.95
4125 64MB Pack	£128.95
Supermaster 128	£49.95
Canon 128	£29.95
SuperBase 128	£27.50
Commodore 1571	£189.95
128 RAM Pack	£95.95
Printer	£29.95
GEDS 64 update file v1.3	£7.99
SuperScript 128	£27.99

Upgrade disk + Mouse (return original disk)	£24.95
Super Pascal 128	£44.95
Super Pascal 64	£29.95
5 Clip-Ar discs for Printshop or Printmaster	£19.95

• Send Cheque/Postal Order or Access Orders or write for more information to:

FINANCIAL SYSTEMS SOFTWARE LTD.

2nd Floor, Ambrian House, St. Marys Street, Worcester, WR1 1HA.

Telephone: (0905) 611463

*** EXPORT ENQUIRIES WELCOME ***

Overseas orders please add £2.50. Please allow upto 14 days for delivery.

All prices include VAT and Postage and Packaging.

NEW BASIC 8

We are proud to introduce Basic 8 with Basic Paint, the first C128 software package specifically designed to unleash the hidden graphics potential of your 128. Using a special wedge technique, Basic 8 achieves performance rivaling that of a 16 bit microc Imagine your 128 producing resolution of 640 x 200 in monochrome and 640 x 190 in 16 colours without additional hardware!

Basic 8 adds over 50 Hi-Res graphic commands to Basic 7.0 and is completely compatible with its advanced non-graphic commands. You work in a true 3-Dimensional environment, controlling such parameters as perspective, viewing angle and the origin & depth of the view. Many, many more features, available by mail order for **£34.95**, more details available on request.

The top selling, award winning GEDS 64, is available with all accessories.

GED Calc 64, Spreadsheet	£24.95
GED Publish, Desktop Publishing	Call
Fontpack 1	£19.95
GEDS 64/128 mouse	£29.95
GEDS Trinks & Tips book	£11.95
128 File 64, Database	£24.95
GDSPack	£21.95
GED spell	£19.95
GED 64	£29.95
GEDS Inside 8 - Out book	£12.95

NEW FOR THE 64 - SYRRES

WE'RE GOING TO CHANGE YOUR MIND ABOUT BASIC!

SYRRES is the ULTIMATE BASIC enhancement system for the 64. SYRRES adds over 25 major commands and over 1000 additional functions to standard Basic. NO that wasn't a typing error. Commands include delete, merge, run, auto, load, save, old, trace, kill, remember, why, exec and many more.

SYRRES comes complete with a 110 page easy to follow reference manual, available for **£29.95** - details available on request.

NEW FOR THE 64 - SUPERCAT

THE ULTIMATE DISK CATALOGUE SYSTEM

Are you tired of searching endlessly through your disks to find the one file you're looking for? Frustrated by having many versions of the same programs on general disks? Then **WORD** is the time to invest in SUPERCAT, the most sophisticated disk cataloging system available for your Commodore 64.

SuperCat allows you to catalog up to 640 disk directories or up to 1,200 with two drives! You can index and alphabetize over 5,000 files and up to 16,000 with two drives. With a printer you'll be impressed by the range of report formats available, you can even print to labels.

SuperCat is incredibly fast - you can open any file in 10 seconds, and sort 1,000 titles in 8 seconds. SuperCat comes with a comprehensive and illustrated manual. SuperCat is the only tool needed to sort out your disks, available for only **£29.95**.

CADPAK-64 + Mouse	£89.95
Upgrade Disk (return original disk)	£5.99
Super C (return original disk)	£44.95
Colset 128-64	£24.95
Colset 128-64	£24.95
CAD PAK 128 + Mouse	£29.95

Ackroyd's Saga

Continuing our learning tables routine we take a look at changing the positions of the mazes and key portions

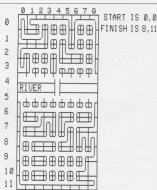
By Allen and Margaret Webb

In the BASIC loader, we provided the options to alter the response time and the number of questions you needed to answer. In the final part, we will teach you how to change the positions of the mazes and key portions, and thereby change the game.

As you can see from the map, the play area occupies 100 squares on a 8 by 12 matrix. Each square can have any of four exits open. The play starts on square 0,0 and the end point is on 8,11. We are using normal co-ordinates where the first number is the X co-ordinate or the horizontal position. The second number is the Y or vertical position. The 0,0 position is therefore the top-left hand corner. Try playing the game with the map in front of you and you'll soon get the idea.

The positions of any mazes is held in two tables in the code. Positions by altering these values, you move masts. The BASIC program does all this for you. The editor allows you to load up the relevant block of code (we called it OBJECT 2). You can then rearrange the game to your satisfaction. When you choose the quit option, it allows you to save the modified code.

Although it forms part of a two part game, Ackroyd's Saga can also be played independently. If any of you have any comments on the game, please let us know via the magazine.



Hi Investments

OMEGA

- ▶ RESPONSIBLE PROGRAMMER - IS DESKTOP ACCESSIBLE
- ▶ SPECIFIC SELECTION OF BUSINESS PROGRAMMING & PERSONAL TOOL
- ▶ YOUR COMPUTER SAID OMEGA - FOR BUSINESS IT
- ▶ COMPANY WORD MARKING GRAPHIC PRINTING CALCULATOR READY PAGEWALK MENU ETC
- ▶ ONLY £49.95

PROFANA

- ▶ 3000 WORD DICTIONARY
- ▶ 18 WORD PER SECOND SPEECH RATE SPEED
- ▶ FEATURES SPELL HELP OPERATES VERTICALLY AND WORD PROVISION
- ▶ WILL TALK CHECK PUNCTUATION ERRORS
- ▶ CREATING CUSTOMISED DICTIONARY
- ▶ £39.95

OMEGA FILE

- ▶ PROFESSIONAL DATABASE & MAILMERGE
- ▶ 200 CHARACTERS PER FIELD, 250 RECORDS
- ▶ 5000 CHARACTERS PER RECORD
- ▶ FULL SCREEN EDITING UP TO 32000 INDEXED RECORDS PER DATABASE
- ▶ RECOVERLY USER FRIENDLY
- ▶ OPEN 2 DATABASES AT THE SAME TIME
- ▶ JUST £49.95

DRUM STUDIO

- ▶ TALKING HOUR 4MIDI AND PROFESSIONAL DRUM TRACKS
- ▶ INCLUDED 30 DIGITISED INSTRUMENTS
- ▶ 10 SOUNDS AVAILABLE WITH 100 PATTERNS
- ▶ 100 DIFFERENT SOUNDS AT THE SAME TIME
- ▶ SCREEN GRAPHICS FOR VISUAL CONTROL
- ▶ ONLY £39.95

WINDOW POINT

- ▶ WINDOWS POINT AND ALLOW YOU TO CAPTURE A SCREEN OR WINDOW IMAGE
- ▶ MANIPULATE, PRINT AND SAVE GRAPHIC
- ▶ PRINT ANY SCREEN OR WINDOW IMAGE
- ▶ PROGRAMS MANAGER
- ▶ INCREDIBLE JUST £24.95

HOME PUBLISHER

- ▶ POPULAR DESK TOP PUBLISHING
- ▶ PRODUCES HIGH QUALITY LAYOUT
- ▶ A FAST & EFFECTIVE WAY TO CREATE PROFESSIONAL DOCUMENTS
- ▶ 30 DIFFERENT FONTS
- ▶ DESIGNED FOR 8.5" X 11" OR 24 PRINTING
- ▶ 157 WORD, DESIGN ETC COMMANDS
- ▶ AFS ONLY £24.95

2 MB RAM EXPANSION

- ▶ MORE SPACE FOR PROGRAM DATA STORAGE
- ▶ EASIER PROGRAM EXECUTION
- ▶ CAN BE EXPANDED TO 6 MEGABYTES
- ▶ 1 YR 50
- ▶ £49.95

HI TEC

Hi Tec is distributed by Robtek Ltd,
Newworth Business Complex, St. Johns Road,
Newworth, Middlesex TW7 8NL
Telephone: 01-847-4457

Through the Round Window

Do you C64 and 128 owners dream of having access to windows, icons, mice and windows? Now the answer is here in the form of a Window Environment Operating System.

By Rony van Hove and Bart Duchaine

Nowadays, when you hear about WIMP (windows, icons, mice and pull-down menus or windows) the machines which spring to mind are the Atari ST, Amiga, Apple IIGX, Apple IIfx and IBM-PC. But what about the 8-bit world?

A few packages for the Apple IIc have been seen but never for our Commodore 64s or 128s. That was until the magic name of Berkeley Softworks appeared with their introduction of GEOS. It lived up to its claims, but alas for cassette users it was still a dream.

Well folks - the answer is now within reach. I proudly present the

WEDS (Window Environment Operating System) with WEOBASIC. It's a form of a Basic extension which will enable you to access the magnificent world of WIMP. And now for the bad news - you'll have to drop the icons because at the moment it's impossible to incorporate these (hardware reasons).

However, I'm working on an icon extension (with raster interrupt). If you do want icons, check some back issues of Your Commodore for Allen Webb's article on WIMPS.

So now all you need to do is type in about 1K (1) of machine code - read on!

All commands and functions are listed as below:

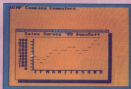
System: well, everyone knows what I mean.

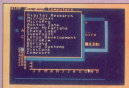
Mode: this can either program or direct or both (all).

Output: this is screen or windows. Description and examples.

The windows fall into three categories:

- All purpose window (APW). Four of these can be opened up.
- Status window (SW). Only one window is allowed.
- Pull down menu (PDM). You can only open one of these at the same





time but you can define up to eight PDBs.

You can open up to five windows (four APWs plus one SW or PDM). You can use any nine DIN mouse (e.g. Beylware mouse, Amiga mouse and ST Mouse) or use an ordinary joystick. Just stick in port two and WIDOS will do the rest.

Starting up WIDOS

Use SYS 6478 or reset your computer. If you own a Commodore 128 you must go to 64 mode. The following message is printed in green letters on a black screen:

```
WIDOBASIC 1.0
WINDOW ENVIRONMENT
OPERATING SYSTEM 4.0
(C) 1987 BONY VAN HOWE
(C) 1987 ASP LTD.
11MBYTES FREE
```

Before I continue you should understand the following:

- We are working in BANK 3 instead of BANK 0.
- BASIC starts at 32768.
- BASIC TEXT STARTS AT 1030.
- Screen starts at 52224-52223 (C000-CFEF).
- Character set resides in 97244-60479 (E800-FFFF).
- PDM/SW buffers are in 61440-65535 (F000-FFFF).
- PAW buffers are in 40960-49151 (A000-BFFF).
- Free use in 49152-52223 (C000-CBFF).

Never use address PB-FE, 2A3-2FF (parameter block one) and 33C-3FA (parameter block two), however this is a temporary block because most data is, after manipulations, flushed to parameter block one).

• Character codes 91-124 are redefined (also the inverse codes), so don't worry if you see some strange codes on your screen.

• If your basic program has crashed and you press reset or SYS 6478 for storage on your screen, but don't worry.

• If your basic program has crashed and you press reset or SYS 6478 for the second time, your screen will contain strange things, but don't worry! However your program cannot be recalled with OLD, because after a reset the system is set first to BANK 0, and since the screen resides in 6400-9767, your basic program is damaged, so when you come back in BANK 1, you can't OLD it again. (So save your magic manipulations before you try.) The WIDOBASIC commands and functions:-

CPDS

Syntax: CPDS (X).

Mode: all.

Output: window.

CPDS reads the cursor position in a window.

When (X)=0 it reads the current x-position.

When (X)=1 it reads the current y-position.

When there are no windows on the screen CPDS will return wrong values.

COLOUR

Syntax: COLOUR (X,Y) (where X=0-2 and Y=0-15).

Mode: all.

Output: all.

Selects the colours where X can be:

0 for the border colour

1 for the background colour

2 for the foreground colour

CLS

Syntax: CLS

Mode: all.

Output: all.

Performs a clear screen (= PRINT CHR\$(147)).

CURSOR

Syntax: CURSOR X,Y (X=0-99 and Y=0-24)

Mode: all.

Output: all.

Places the cursor at the specified screen/window co-ordinates.

INVERSE

Syntax: INVERSE X,Y (X=0-99 and Y=0-24)

INVERSE (X,Y) (X) and Y as above and Z=0-40.

Mode: all.

Output: all.

This instruction inverts a specified length (X) at a specified position (Y,Z). If no length is given the default of 1 is taken.

IF

Syntax: IF condition THEN ...

IF condition ...

Mode: all.

Output: all.

This is an exchanged version of our C64 IF instruction. In the normal case the condition can be followed by a GOTO or a THEN. But I decided to change it, the reason being that you can put any instructions after the condition, e.g.: IF X=2 A=2 is the same as IF X=2 then A=2

IF Z=0 or SCN(X) PRINT "Jan Jan"
Note never put a line number after the condition (GOTO).

SCRN

Syntax: SCRN(x,y)(x=0-30,y=0-24)
Mode: all.
Output: all.
 Returns the screen POKE code of the specified location on screen/window, e.g.:
 10 CURSOR LC:PRINT "A"
 20 IF SCRN(1,1)=1 PRINT "IT WAS 'A'"

PAUSE

Syntax: PAUSE x(x=0-255)
Mode: all.
Output: all.
Output: all.
 Pauses the program x times (1 unit pauses 1/44 sec).
 If x=0 it waits for a keypress, e.g.:
 10 PRINT "Hi a kid?": PAUSE 1
 20 PRINT "SQUK HEY?": PAUSE 1
 30 PRINT "STRANGERS IN THE PRIN":
 "T": STRANGERS IN THE NIGHT": PAUSE 255

BUTTON

Syntax: v=BUTTON
Mode: all.
Output: all.
 Scans the trigger of joystick on the left button of your mouse. When you don't press the button it will return a 0 otherwise it will return a 1, e.g.:
 10 IF BUTTON=1 PRINT "FIRE... FIRE": GOTO 10

DISK

Syntax: DISK i(i=0-255)
Mode: program only.
Output: screen only.
 This is a rather unusual command. It performs a total initialisation of your computer for a desktop application, i.e. the screen will be filled up with the specified code(i) (mostly i=94, because this is the disk pattern) and the upper part of the screen will be cleared and filled up with the FUD-heads. All opened windows will be removed.

POINTER

Syntax: POINTER ON
 POINTER OFF
 POINTER px,py,ax,ay
Mode: all.
Output: all.
 Pointer initializes the pointer, px is the sprite pointer (more info about pointers in your C64 reference guide) and ay is the colour. The next two pairs are optional. The first specifies the x acceleration and the second (ay) the y acceleration (only between 0-4).

The sprite for the pointer is predefined and is built in WDC8. WDC8 has in fact three predefined sprites, more info by the MOVBLE command.
 P.e. POINTER ON: POINTER
 47.2.2.2: MOVBLE 047 And if you move your mouse/joystick you can move the pointer.

MOVBLE

Syntax: MOVBLE source, destination (both 0-255)
Mode: all.
Output: all.
 As mentioned earlier, the system has three predefined sprites but you can add seven sprites of your own which will be always in WDC8 if you save or load it again. The first para refers to the system sprite, i.e., the second refers to the destination pointer (you can only use 0-47, since 48-55 are behind KERNEL and the 150 chips). The following sprites are incorporated:
 0: pointer
 1: hook 1
 2: hook 2
 3-9: free use
 To define system sprites 1-9 BY:SKK in your data from 1966. Each sprite must contain 64 bytes as usual. Now save your new version of WDC8 on a separate disk or cassette, e.g. look at pointer.

DIR

Syntax: DIR
Mode: all.
Output: screen.
 Displays the directory of device 8 drive 0 on the screen.

MOUSE

Syntax: v=MOUSE
 v=MOUSE(x) py
 v=MOUSE(x,y)
Mode: all.
Output: all.
 MOUSE returns the direction of the current movement of the joystick/mouse (x=FEER(16720)AND(15) MOUSE(x) where px=0 or 1. Returns the position of the pointer in a WINDOW (x=0-30 y=0-24).
 MOUSE(x,y)=0-1: same as above but now position on the screen.
 px=2-5: returns x and y acceleration.
 py=4: returns pointer colour.
 Try this:
 10 POINTER ON: POINTER

47.2.2.3: MOVBLE 047
 20 SCREEN 15,10
 30 CLR: WPRINT "X=": MOUSE(X)
 "Y=": MOUSE(Y)
 40 WPRINT "MX=": MOUSE 0(x)
 MOUSE(Y)
 50 PAUSE 16000 30

After you typed it all in, you will see a static window with flashing information. The first two gives you the screen co-ordinates and the other two the window co-ordinates. As you will see every out of range gives you a separate answer, (-1).

This is quite a handy instruction for multiple choice menus. Use this together with INVERSE and you'll get a very professional look. Study our Desktop program for a very good result. (Selection of a file.)

OLD

Syntax: OLD
Mode: direct.
Output: all.
 Everyone knows this command.

WDC8

Syntax: WDC8 v(v=1 or v=2)
Mode: program.
Output: all.
 Because the complex structure of this statement I could not find a logical name. It simply does so much. WDC8 works in conjunction with the pointer.

When v=1. Each time WDC8:BC performs this instruction it scans the whole screen for special symbols if any, inverts them and a whole series of information in the system is then updated (which you can read later by the necessary function provided by the system).

When v=2 it does exactly the same as above but now it also scans for menu headings at the upper row (DISK must be executed first, otherwise it has no effect) if the pointer points to a menu header and you press the button, the header will be inverted and the menu is pulled down. The system will now wait until you have selected an option and then return to BASIC. However if you go to another heading the current menu will pop up and the system will return to BASIC, e.g.
 10 DISK 94
 20 POINTER 41,1,2,1, POINTER ON: MOVBLE 047
 30 WOPEN 1,2,10,10, "WDC8 DEMO".3
 40 WDC8 2: GOTO 40



Run if An APW will appear on your desk and a pointer; when you move the pointer to one of the special symbols (the two symbols at both edges of the window), press the button and you will see it will be inverted! Try to point for the second time to the same special symbol again - you will notice that it won't be inverted back. The reason being that the system assumes that after you have pointed to a symbol it has to execute a user-defined piece of program. But how to invert it again so that it is back to normal? Well, that's not so difficult; you simply replace them with the normal codes (full list of symbols is listed in table 1).

System: RUN

Mode: all.

Output: all.

This RUN does exactly the same as the normal RUN command, but it changes some registers. The result is that the normal RUN-tokens is not the same as the minor changed RUN, the new token is 288 directly followed by 1. (The first code is necessary for an extended instruction.) This also means that if your old programs contain any old RUN statements you have to retype those statements after you loaded your program in WEOBASIC.

WINDOW

System: WINDOW(x,y)

Mode: all.

Output: all.

This function only works in conjunction with WOPEN, WCLOSE, WSWAP, WMOVE and with any other window command, we can by 0 - WINDOW will return the current window no - 0 = no window on screen.

1-4 APW window no.

5 SW

6 SWM

1 - current window's x-position

2 - current window's y-position

3 - x-length of window

4 - y-length of window

5 - shadow flag

Nil, when there is no window in action the function will return a negative answer (-1) except for WINDOW(0) which will return a null (0). We use this command in our desktop program for moving and copying windows, windows.

DISK

System: DISK

DISK a

Mode: all.

Output: screen only.

DISK displays the disk status if you don't know again why the red led is flickering.

DISK sends a disk command to device 8 drive 0 or 1. When no disk drive is connected to your C64 the system will ignore the command and continue with the rest of the program. NB, when you want to read the disk status and you have no disk drive the system will hang up (RUN/STOP+RESTORE). This instruction will not work correctly with all disk drives.

WCLOSE

System: WCLOSE

Mode: all.

Output: all.

This statement will close the current APW; when no window appears on screen, nothing will happen. If there are more windows on your screen, the last opened will be closed. The two special symbols on both edges of the window will be placed on the previous window, and the next screen command will work on that window (eg. WPRINT or CLS). When there is another type of window on the screen (eg. a static window) it will cause an error, e.g.

```
10 WOPEN 1,1,28,16,"WDO5":
WOPEN 6,7,4,16,"7"
20 PAUSE 0-WCLOSE:PAUSE
6-WCLOSE
```

SCLOSE

System: SCLOSE

Mode: all.

Output: all.

Closes a SW, when SW is present on the screen no error will be printed. If there is still an APW window on your screen it will be activated after closing the SW (you can see this by the two symbols appearing on the window), e.g.

```
10 WOPEN 126:PAUSE 65:SCLOSE
```

WPRINT

System: see PRINT (WPRINT does the same)

Mode: all.

Output: windows (APW & SW)

Almost the same as BASIC's 2 print instruction. You can use both SPC and

TAB functions as well as other characters such as " or ' or BASIC variables, e.g.

```
WOPEN 1,1,20,16,"DEMO FOLKS"
followed by :WPRINT "VC,THE
BEST":WPRINT"WHO else?":
:NO...:WPRINTTAB(7)MEX is
"SPC(5)A"??
```

When the window is full, it scrolls everything up. Of course, a window must be opened first.

MENU

System: MENU on ON

Mode: OFF

MENU m,n,d,op,up,down (Level,sel,dir,act,04)

or MENU (y)

Mode: program.

Output: all.

Probably one of the most powerful commands of WEOBASIC. - MENU on (ON=on+off) opens a menu with the options. When the specified menu is not yet defined an error message will be printed. When you try to open a menu and the DISK command is not yet performed every menu will be opened at position 0, e.g.

```
10 MENU 1,0,2,1,"DEMO OPT1
OPT2 "
20 MENU 2,0,2,1,"DEMO2: OPTA
OPTB "
30 CLS: MENU 1 ON: PAUSE
6:MENU 2 ON
```

When you run it, a menu will appear on the screen however without the "header" DEMO and when you press a key, the menu will disappear and another menu will appear, again without a "header". Also the second menu is pulled down where the first one was pulled down. You can understand that this is certainly not a professional way to use pull down menus. Delete line 30 and add this one: 30 DISK 84: MENU 1 ON: PAUSE 6:MENU OFF:MENU 2 ON

Run it! You will notice that everything is alright now the headings will appear, also inverted.

MENU OFF: operators just like WCLOSE or SCLOSE, the menu will be popped up and if there is an APW on the screen it will be activated (the two symbols you know!). If a static

window is opened and you try to pull a menu down an error message will be printed.

MENU: the third variation of MENU gives you the possibility to define a menu. The definition is always in program mode:

```

mem... menu no. (1-8)
xl... length of menu window (1-40)
op... number of options (1-20)
sp... spacing flag (0 for no, 1 for yes)
mc... contents the menu options
data
mc... colour of menu text (0-15)
wc... window colour
sh... shadow flag (0=no, 1=yes)
sc... shadow colour

```

Well, well this is also of information! The first para is the menu which must be defined. If the menu no. of range a friendly MENU SYNTAX error is printed. When you define it, the new data will overwrite the old one. The next para defines the number of options. 'sp' is the space flag, when you say yes the maximum allowed options is divided by 2 (so this means not 20 but 10 options)

The difference between these variations is shown by the next demo.

The difference between these variations is shown by the next demo. Delete lines 20 and 30 of above and modify 10 to:

```

10 MENU 1,10,2,0,"DEMO OPTI
OPT2 "
20 DESK 94MENU 1 ON/PALNE 0

```

You will see that the options are directly printed under each other. When you change the 0 in line 10 to 1 and RUN it again you will see that there is a space between the options.

The following para is the most important; this contains all menu text data which must be printed in the menu. The very first name is the menu heading, which is followed by a left arrow (this indicates the end of the first name) and is directly followed by the name of the first option and again followed by a left arrow. Use a left arrow after each name and if you have finished your string type an up arrow. The previous demo illustrates the use of the string. **DO NOT USE CONTROL CODES IN THIS**

STRING!

 Remember to add as much options in your string as there is specified by the 'op' para.

The next para are optional; 'wc' indicates the colour of the menu text but not of the header! The next one is the colour of the window, then comes the shadow flag. When this is set to 1 a shadow will be added to the menu. You have a choice when it comes to specifying the shadow colour. It is interesting that when you type a comma directly after another the system will use default values, e.g.

```

MENU 1,20,2,0,0,2 (text colour is red)
MENU 1,.....,1,2 (text colour is white, and window is cyan)
MENU 1,.....,2,2,1 (all as above but with a shadow)
MENU 1,.....,3,1,2 (cyan for text, foreground colour for window and red for shadow)
MENU 1,.....,4,0 (uses blue for text, foreground colour for window and no shadow)
but... this is wrong: MENU 1,.....,4,2,1 (the reason is simple - the default for the shadow flag is no shadow so you can't define a shadow colour.

```

To be continued

It's easy to complain about advertisements. But which ones?

Every week millions of advertisements appear in print, on posters or in the cinema. Most of them comply with the rules contained in the British Code of Advertising Practice.

But some of them break the rules and warrant your complaints.

If you're not sure about which ones they are, however, drop us a line and we'll send you an abridged copy of the Advertising Code. Then, if an advertisement bothers you, you'll be justified in bothering us.



The Advertising Standards Authority.
If an advertisement is wrong, we're here to put it right.
 ASA Ltd, Dept 2 Brook House, Torrington Place, London WC1E 7HN

This space is donated in the interests of high standards of advertising.

BYTES & PIECES

128 SOFTWARE SPECIALISTS

FOUNDMASTER 128 wordprocessor and desk top publisher with spellchecker of 102,000 words. Intelligent, and able to give you the nearest spelling. Works fine with the RAM packs	£49.95 + 3%
CLIP ART disks—six available for 1541-1571-1581. Titles are: People and faces, Animals, Misc 1-2-3, Celebration. Each	£5.00 + 3%
CBM 1789 512K RAM expansion module (to order)	£149.00
128 HELPER electronic help facility, stays in memory for you to call up instantly for help, advice and examples	£24.95 + 3%
128 CANNON this is the ultimate copier for 1541, 1570, 1571 and the new 3½" drives. Advanced features, and is designed to operate in 128 mode and between drives	£29.95 + 3%
THE BIG BLUE READER allows you to transfer and read files from IBM machines and write back to them, all from 128 mode! Also has a CPM facility and ASCII translation as well	£29.95 + 3%
GEOS 128 this is the 80 column 128 version (works with mouse)	£49.95 +
Also for GEOS are GEOFILE, GEOCALC, WRITERS WORKSHOP, DESKPAK, PUBLISHER	
COMMODORE MOUSE FOR THE 128 this is a true mouse and not a joystick emulator	£29.95 +
MOUSE MAT for above	£5.99 +
COMMODORE 1581 3½" DISK DRIVE this is the new very fast 3½" drive from the States. Does not suffer overheating as it has its own external power supply. Comes with a utilities disk and 12 months guarantee. 800K of storage; runs at 8000 characters a second read/write	£199.95 p&p £3
(We offer 128 copies for £75 when purchased with the drive)	
3½" DISKS in sets of ten with labels	£9.00
128 PLUS plug in replacement ROM for fast drive access in 64 mode plus ALL the keys as well. DOS commands and other features built-in	£19.95 +
1571 FIXIT ROM is the ROM chip that fixes the 1571	£24.95
MONSTER PRO 128 the ultimate Contour program	£29.95
CARDCO SUPER C+ hardware interface emulating a 1525 for centronics printers. The price itself should recommend it together with the excellent output HARDPAK 128	£29.95
CAD PACK (Abacus) (works with mouse)	£29.95 3%
SUPER C (Abacus)	£29.95
CHART PACK (Abacus) (works with mouse)	£29.95 3%
COBOL 128 (Abacus)	£29.95
OXFORD PASCAL 128	£19.95
BLITZ 128 fast compiler	£27.95 +
PETSPED 128	£19.95
MICRO-CLERK	£75.00
SUPERSCRIPT 128	£39.95
SUPERBASE 128	£49.95
THE LAST ONE is a program generator which allows you to design and write stand-alone programs to your own specification by following a simple question and answer routine. (64 mode)	£19.95 + 3%
HINTS & TIPS book for THE LAST ONE	£4.95
For those of you with PRINTSHOP or PRINTMASTER we have available 5 new Graphics Disks for these two packages. £9.95 each, or all five for	£45.00 +

All programs with 3% after the price are available on the 3½" drive format. However, please add £2 to the price for this format.

All cheques payable to **BYTES & PIECES**, 37 Cecil Street, Lytham, Lancashire FY9 3NN. We try to mail within 14 days. However, sometimes stock is awaited so please be patient. Prices are all inclusive (except drive)

Foreign orders please add an extra £2.50. Please write clearly

Tel: 0253 - 734330 (after 8pm)

USER GROUP members may obtain a 10% discount on items marked with a star, but only if they give their current membership number.

The ICPUG Column

The latest views from the country's biggest Commodore user group.

By Tim Arnot

I don't know about you lot, but I quite enjoyed the PCW show. Not because there was a lot to see - there wasn't. But rather because it was an opportunity to meet people and talk to them.

The first impression everyone has of the PCW show is its size. It's BIG, spanning both Olympia 2 and the National Hall. It took me three days to see the whole show during my off-duty periods from the ICPUG stand, and I'm not convinced even now that I saw all there was to see.

Having looked around, there was nothing on display that was new or really exciting. I feel more qualified that there were two stands that were worth visiting because their products are, I feel, significant. The first stand was Minis, in an obscure corner of the business section, they had an incredibly cheap 386 micro (18000) running a transparent card, and driving a Mitsubishi 19 inch EGA monitor. Now, transparents are one technology where Britain leads the world, but if we don't invest in them heavily, the Americans will take away that lead. However, that French monitor I would really use.

The second stand that impressed me (and I don't know if I should say this in a Commodore magazine) was the Acorn stand. Archimedes uses the same basic RISC technology as the transparent, and it doesn't half shift. However I think Amiga is better. At

the end of the day, what counts is boxes out of the door, and Acorn just doesn't have the marketing power to compete in the global marketplace.

Back now with the 'good guys'. Commodore had a 'village' in what was essentially the National Hall restaurant. It was a nice parochial affair, tucked away in a little backwater. I guess people can't help comparing it with Atari's "world", noticing the vast difference in size, vendors and popularity. I reckon Commodore need to get out of their "village mentality". It takes more than a village and a football team to conquer the world.

Speaking of football, I guess everyone knows that Commodore have spent 1.2 million in sponsoring Chelsea. During the show, 'selected guests' were treated for a tour of the ground and a pop talk by this month's CBM top management. Whilst being 'peped', I spoke to Mike Hambley, Commodore's Technical Support Manager. The newly launched PC-1 is, it seems, an Amiga A2088 (James said turned on its side with a display adaptor, ports, keyboard and disk drive bodied on). Further interesting possibilities are opened up by the fact that the disk expansion socket is the same as the Amiga disk socket. While no expansion slots in each, there is an 'expansion connector' that looks remarkably like the male version of a slot. So all you need is a gender header.

Unfortunately, Mike was unable to confirm this suggestion at the time.

Commodore saved about their new range of brochures, that were not actually available to the public. The A2088 brochure was their pride and joy, and yes, it was impressive. Get one off Commodore and start dreaming the A2088 may be Commodore's new flagship, but the beloved C128 is notable by its absence. When asked, the Commodore reps just changed the subject. I hope it was purely oversight, because I'd hate to see the C128 dropped.

As I'm about out of space, it really just remains for me to thank, on behalf of the exhibition organisers, all those volunteers who helped on the ICPUG stand, and everybody who turned up or otherwise contributed towards making PCW a very enjoyable event.

Membership Details

For more information on ICPUG you should write to:
 Jack B. Cohen
 Membership Secretary,
 30 Bramston Road,
 Newbury Park,
 Weybridge,
 Essex EC2 7EP
 One year's subscription to ICPUG is £10.00.

DATEL ELECTRONICS

256K SUPEROM EXPANDER

- Now you can add two 256K 28C64s (optional)
- 4 banks to expand up to 1MB (28C64s only)
- On-board operating system - no computer is used
- Program your own software using an EPROM programmer
- If you need a base board cartridge - you make a connection from the system menu
- Density of 256K is power up
- Fully menu driven on power up
- Select any old order software outside
- Support EPROM programmer (datec 40) and other EPROMs - built on a 16 bit bus (see also standard 28C64 - EPROM burner required)
- Supports 16K or 32K order EPROMs
- On board cartridge menu.

ONLY £29.99



4 WAY KERNEL BOARD

- The board fits in place of the kernel in your 16 bit computer - 1MB or 2MB requirements normal getting 16K additional operating systems
- Use data base menu supplied to select software systems
- This is a master card - needs a second port card only
- Now you can have all your software systems available in one card

ONLY £8.99

1 MB BOARD **ONLY £12.99**



CLONEMASTER..

- Makes tape to tape backups
- Works with most floppy loaders etc.
- Requires access to two 320K type disk drives
- Makes perfect copies
- Very simple to use
- LSI based hardware

ONLY £9.99 per card



RESET CARTRIDGE

- Compatible menu driven
- Needs menu on card "initialiser" program
- Will allow from expansion card
- Works worldwide
- Fits into slot

ONLY £5.99



DUPLIKATOR..

- Copies whole disk to one page - 1MB (28C64 required)
- Makes backup copies to eight boards
- Duplicator is the fastest, best priced and easiest to use disk copying system ever introduced
- Copies complete 1MB 28C64 on-board disk card. (In this operating system - no software is used)
- Makes multiple copies from one original
- Full disk protection during loading process
- Copies standard software as well as system files and open file tracks
- Full disk error checks in eight boards
- Full disk error report sent to other boards
- At least for disks over 100K size. (For other size you may need 256K disk card for the 28C64)
- Copies complete 1MB on-board disks and menu boards
- Plans to introduce - no ordering ready required

ONLY £89.99



16K EPROM BOARD

- Supports 1 MB EPROMs
- Duplicator is software built a 16K or 32K EPROM
- On board cartridge menu
- Full protection

ONLY £8.99

DISK NOTCHER

- Quickly and easily loads your disk contents
- The best value of your disks
- Simple to use
- Menu driven

ONLY £4.99



DEEP SCAN BURST NIBBLER™

- The most powerful disk utility available anywhere at any price!
- Deep Scan Nibbler is actually a two part system - a software package and a peripheral device to extend the disk before it is damaged (1MB or 2MB disk type)
- What does Deep Scan Nibbler do exactly? International software have to check the data first on the disk before it is damaged (1MB or 2MB disk type) - when you standard disk is compromised they are lost. Deep Scan Nibbler checks data on 16000 cylinders (the parallel sector without the need to divide into you get a perfect copy of the original)
- Will overwrite 2 cylinders
- Copy a whole disk to another system
- Full protection
- Regular updates - no computer is used
- Plans to introduce - no ordering ready required
- Full on-line menu
- No need to copy peripherals (they have their own floppy disk)
- Data base software extension to other software
- Whether to choose RealDisk or to Deep Scan Nibbler? RealDisk file is ultimately more as an "all rounder" - with software, 1 MB (2MB) copy device. (It says 28C64 required. Also, as it requires a complete requirement software RealDisk file is 100% free. Deep Scan Nibbler is a pure utility available to use. For the reasons stated, if it is not ready to be used you are interested in, there is no other package to buy)

ONLY £24.99 COMPLETE

SOFTWARE ONLY £12.99 CABLE ONLY £14.99



EPROMMER 64™

- An EPROM burner EPROM programmer for the 84-168
- Fully menu driven software hardware package makes programming/loading/writing/erasing EPROMs extremely fast
- Will program EPROMs 28C64, 28C16 and EPROM chips 28C16, 28C16, 28C16
- Full feature system - all functions covered including burner check menu
- All feature EPROM burner software comprehensive, user friendly and best value for money programmer available for the 84-168
- Also compatible for Eprommer Board, Cartridge Development System, can format expansion or other any EPROM file projects
- Does complete file instructions - also the cartridge functions

ONLY £39.99 COMPLETE

DATCEL ELECTRONICS



PROFESSIONAL DOS 644.99 MICRODYNAMIC

POST FREE with Disk Drive operating system

"The world's fastest parallel operating system"

- Loads a typical MS-DOS program for a 4.5 second transfer
- Fits into just 750 files

- Six files per 100 files
- Six files per 750 files
- Six files per 300 files

PLUS 6 CHANGES (Detailed in operating documents)

- Fast boot - up to 60 seconds (740 files)
- A hotkey for file, dir, find, directory tree, etc. (100 files)

- Fast file backup file up to 600 seconds (one single system file only up to 200 files)
- Better operation
- Fast

- Drive lock in two-part will keep file up to 600 seconds (optional)
- Single program file operation

- File copy operation with sequential access - not recommended for non sequential programs
- Directory file with volume label - a format DOS backup of volume in volume if available - performance

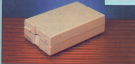
- Speed up your DOS file transfer loading (using records)
- Better compatibility with sequential file and disk file system

- Better compatibility of directory loading
- Enhanced network use - see operating documents

- Hardly filled - Disk Drive, plus extra disk (MS-DOS) and the core operating system (only cost under the MS-DOS) (Many users may transfer and install) (Requires no software)

- Live your hard drive's capacity full - you need just 100 KB for this volume
- Appended updates - no more to buy
- More or less - you can get up to 300 files

MS-DOS version
£69.99



BLUE CHIP DRIVE

- Great for copying critical & sensitive files
- Super volume size
- Offers great support for file sharing
- Alternative uses
- Supports operation with all systems - in two-part file

- Offers more than 600 programs (not available for all systems) (When you transfer files, you can transfer them to other systems, in fact you can even update to a system that has no hard disk drive)
- MS-DOS to disk conversion - 100% no disk loss

ONLY £199.99 POST FREE
 Free expert advice before and after sale

ULTRA CRUNCHER

- The ultimate cartridge based program compressor
- Compresses up to 10x
- Works with any file
- Can be used on any system
- Can be used on any system
- Can be used on any system
- Can be used on any system
- Can be used on any system

- Can be used on any system
- Can be used on any system
- Can be used on any system
- Can be used on any system

- Can be used on any system
- Can be used on any system
- Can be used on any system
- Can be used on any system

ONLY £12.99
 Free expert advice before and after sale
 Free expert advice before and after sale
£13.99

FAST HACKER™

- World's fastest Hack Master - all in one file
- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds

- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds

- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds
- Hack Master - Hack a file in 10 seconds

ONLY £9.99 POST FREE



DISK MATE II

The Disk Utility Backup

- One backup cartridge
- One to three files

- Fast copy
- Fast format (10 min)

- Support MS-DOS - single file systems - two systems for backup
- Backward transfer for fast operation of various systems

- Transfer data between systems
- Multiple backup systems

- Transfer files between systems
- Transfer files between systems

- Special software techniques make Disk MATE II a more complete backup than other systems
- Disk MATE II

ONLY £14.99



MIDI 64

A Full MS-DOS interface for the MS-DOS at a realistic price

- MS-DOS
- MS-DOS
- MS-DOS

- Compatible with most leading software packages including MS-DOS, Microsoft Word, Lotus, etc. (Requires MS-DOS)

ONLY £29.99



MOUSE

- MS-DOS 3.0 version
- Wide compatibility with software including Mouse Jockey
- Multiple operating system or will work in any system operation (optional printer interface may be required in system)
- Professional-style system price
- Special system operation

ONLY £24.99

CHIPS

£3.00 EACH

£64.50 EACH



CARTRIDGE DEVELOPMENT SYSTEM

- Cartridge development software for MS-DOS 3.0 and later versions
- For quality MS-DOS operation on all systems
- Easy to use
- MS-DOS

- Cartridge development software for MS-DOS 3.0 and later versions
- For quality MS-DOS operation on all systems
- Easy to use
- MS-DOS

ONLY £12.99

complete with handbook

ALL ORDERS NORMALLY DESPATCHED WITHIN 48 HRS

HOW TO ORDER

BY PHONE	BY POST	BY TELETYPE/BULK
0766 279635	Send cheque/PO made payable to: Datcel Electronics	Send Order (0766 279635)
24 hr. Credit Card Order		



UNITS 6/5, DOWNING ROAD, FENYON INDUSTRIAL ESTATE, FENYON, STOCK-ON-TRENT, ENGLAND

SALES ONLY 0766 279635	TECHNICAL ONLY 0766 20888
---------------------------	------------------------------

SUBSCRIPTIONS SENSATIONS! AT COVER PRICE ONLY!

Any of the magazines from the list below can be delivered to your door
with : **NO handling charge** **NO postage costs**

A&B Computing	£18.00
Aeromodeller	£22.20
Citizens Band	£18.20
Clocks	£27.00
Commodore Disk User	£15.00
Disk User	£17.70
Electronics Digest	£11.00
Electronics Today International	£18.80
Ham Radio Today	£15.60
Military Modelling	£15.60
Model Boats	£15.60
Model Engineer	£26.40
Photography	£15.00
PhotoPlay	£12.00
Popular Crafts	£18.20
Radio Control Model Cars	£16.20
Radio Control Boat Modeller	£7.50
RCH&C	£14.40
Radio Control Scale Aircraft Quarterly	£9.00
Radio Modeller	£14.40
Sea Classic International	£11.70
Scale Models International	£15.00
Video Today	£15.00
Which Video?	£15.00
Woodworker	£15.60
Your Commodore	£14.40
Model Railways	£13.20
Practical Wargamer	£7.80

The Above Prices Refer to U.K. Subscriptions Only

This offer is also open to existing U.K. subscribers who
may wish to extend their current subscriptions.

Please continue my subscription(s) to _____ with the _____ issue
I enclose my cheque / money order for £ _____ made payable to Angus Specialist Publications Ltd.
or debit £ _____ from my Access/Barclaycard No.

valid from _____ to _____ Signature _____
Name _____
Address _____



Send this form with your remittance to
ANGUS LTD. (N.B.S. 88) 3 River Park Estate,
Berkhamsted, Herts. HP4 1HT.



Ultra Function Keys

Use the function keys to store seven screens of instructions without limiting your Basic memory!

By Geoff Hackworth

Commander blessed the C64 with eight function keys, but in their infinite wisdom, they totally neglected to include any support system. My program provides such a system which allows you to store data which can be recalled to the screen at will. Before you say that you've seen all this before, look at the size of the program and you'll realize that it is no ordinary function key utility.

Most programs will only allow each key to produce a string of about eight characters. With this program you can store up to 998 characters on each of the five main keys, the F8 key being reserved for the UPK Editor. The Editor allows you to 'program' the other keys and view a 117 character description of the task stored on each of them.

The Editor is very simple to use and is very similar to the screen editor built into the C64's operating system. Most characters may be stored by the Editor except for the colour and RYS ON or OFF symbols. There are also some special symbols for use within the stored data which perform specific tasks.

All the information stored on the keys may be saved and reloaded by two simple SYS commands.

Storing 998 of information may seem a bit memory consuming but the machine code and its variables are stored from 49652 to 53185 and the descriptions are stored under

the Basic ROM. This means that normal Basic memory is still available for developing your own programs.

Getting It In

The program is presented in the form of a Basic loader which simply has to be typed in, saved and then run. Apart from the Four Commodore checksum, the program contains its own data sheet which will indicate any line in which an error has occurred. If you find any errors, correct them and then save the program again.

So that you don't have to use the Basic loader every time you want to use the UPK option, you may use a small size routine within the program itself. SYS52980, "ULTRA",1,1 for cassette (S,I for disk) will do this for you. To reload the normal LOAD "ULTRA",1,1 (or S,I) command followed by NEW after loading has been completed.

Using the Program

To initiate UPK, type SYS49152 and press RETURN. The screen will change colour, clear and then ask if you want to clear the data in the function key and description areas. At this time the memory just contains garbage so the correct response is "Y". The original screen display will return and a message indicates that UPK is now operative. Every time UPK is called, it stores the current screen display

under the Kernel ROM and copies it back again when you exit from UPK.

Once in UPK you can start to program the keys. Pressing F8 will call up the Editor. Select the key which you want to program (F1-F7) or later you can press F8 again if you want to view any descriptions which you have already defined.

For now, press F8 and the screen will clear except for a reverse field full stop beneath the cursor at the top, left-hand corner of the screen. This full stop is the end marker which is always used to indicate the end of a definition. Even when there is nothing defined for a particular key, this symbol should be present.

Start at the current cursor position, you can now start to type in your new definition but remember that the last two spaces on the screen cannot be used. One space will be needed for the end of definition marker (the reverse full-stop) and one space to prevent the screen from scrolling up and losing the data on the top line or two. This is a necessary compromise to avoid having to use a sophisticated (and much larger) screen after program.

Now you can try a simple demonstration of the Editor's capabilities. With the cursor in its home position, type PRINT "A TEST" and press the RETURN key. In normal use you would expect this to result in the system printing

Table 1

Reversed Character	Function within definition	Called by pressing
?	Input request	II
.	End marker	IZ
E	Await key press	IS
D	Delete character	IA
S	Home cursor	IS
*	Clear screen	IB
←	Return	RETURN
=	Shifted return	SHIFT/ RETURN

A TEST onto the screen. In Editor mode this doesn't happen, the cursor simply prints a reversed "less than" symbol as though it were just another character. Now type PRINT *? and press RETURN again. This should appear on the same line as the last command.

This is as far as the current definition will go but, as you can see, a lot more information can be stored on the screen, even more than can be stored on a normal C64 screen.

To end this definition a full stop must be placed after the last return symbol. Press IZ and you'll see this happen and then press IB to quit the editor. The old screen will be restored and everything looks normal until you press the II key. When you do, the words PRINT "A TEST" appear and, instead of the symbol appearing, the return is reversed and the words A TEST appear as if you'd pressed return yourself and the READY prompt underneath them. Before the flashing cursor appears, the formula PRINT *? then appears, under this the result 20 followed by the normal READY prompt.

The only time you don't have to end a definition with the reversed full stop is when the definition fills all 998 characters on the screen. In this case leaving the Editor with the IB key will automatically place the symbol at the end of the definition.

There are several other embedded commands and how they can be used within a definition are summarized in Table 1. All of them are reverse field characters so from now on they will be referred to without reference to their reversed out nature.

Inside the Editor, the CLR and HOME keys work in normal and will clear a written screen of an unwanted function key definition or return the cursor to the top, left-hand corner of the screen. Within a definition you may want to clear the screen or home the cursor for a special purpose so, to facilitate this, there is a special character for each purpose. The "S" or home command is obtained by pressing IS and the least symbol is held on IB.

Before these commands are executed, you'll probably want to halt the function key output so the "I" and "C" have been utilized to allow user input or await a key press.

The question mark is a very powerful feature which allows the user to INPUT fresh data. This allows the user to type in up to 37 characters in length. When the definition printed reaches this symbol, the computer pauses and awaits your input. One use for this is to enter a text output such as the word "LOAD" followed by the question mark, another set of quotation marks and the return symbol. In operation, the program will wait for an input after printing "LOAD". It will wait for a filename to be typed in from the keyboard until you press return. The end quotes will then appear and the LOAD command executed. The quotes could also be followed by "J" for a disk command or "D," for a machine code tape load. If you do load a machine code program make sure that it doesn't use the same memory area as the Editor!

Once an input string has been defined it is stored for use the next

time. When the definition pauses for input this last input can be repeated by holding down the shift key and pressing RETURN. If you don't want to input anything at any time, use the delete key to erase to the beginning of the input line and press RETURN. If this means that a syntax error will occur, an error message will appear on the screen but the execution of the I-key definition will continue.

Sometimes syntax errors will occur within a definition due to programming errors. If this happens at any time the function key prompt can be halted by pressing RUN/STOP. The computer responds by printing "****ABORTED ****" and halting execution.

The "C" symbol means that the computer will wait for any key to be pressed before continuing. So if a command such as PRINT "A TEST" has the "C" symbol before the return, the command will not be executed until a key is pressed. The border also flashes as a visual indication that a key press is required.

If the symbol follows a return symbol a space must separate the two commands. This means that a space will be printed which may not be desirable. It is easily remedied by placing a delete symbol, "D" after the "C".

Some definitions may not fill a line and may not be direct computer commands. For example, you may want to include game instructions on the II key. Normally the text would have to be padded out with spaces to make it fit the screen. This is wasteful of memory so I have included a shifted RETURN symbol. When this is used it operates as it would in normal operation mode, everything on the line is ignored by the operating system and no syntax error occurs.

One extra use for the IIFK program is to use it as a pre-loader for a program of your own. Text screens and commands can be stored on the keys and the procedure would be to use the IZ key to load the program, the IB key to run it and all of the remaining five keys can hold the instructions. At the end of the game or utility, the function keys can be used by the next user to re-read the instructions and run the program again.

The key definition information now is used like a REM statement in Basic. The function of each key can be encapsulated in 117 characters so that you can easily check to see what the key is programmed to do. If you then don't see the particular set of definitions for some time after you created them, then you can easily recheck to see what was their original purpose.

The definitions can be viewed by pressing F8 to enter the Editor and pressing it again. You can have another choice to make - press any other function key to read its description or press F8 again to view all of the definitions in notation. Whenever you view a description you are asked if you want to edit it. If you press 'N' the next description will be revealed or you will return to the Editor if you

press 'Y', editing may proceed in the same way as editing the data stored on the function keys. The only difference is that the BVS ON and OFF symbols are functional.

After entering the new definition, you can press RETURN to return to direct mode or move on to the next definition.

Table 2 outlines some of the SYS calls which may be used in preparing definitions. For example, SYS4916 could be used as part of a definition where there is a danger of an illegal entry being executed.

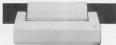
Imagine that a definition has a calculation where an attempt may be made to divide a number by zero. This is an illegal function so inclusion of a line similar to IF C=0 THEN PRINT "DIVISION BY ZERO ERROR": SYS 49161. The next line of such a program could be PRINT C/100. If an error occurs the function will abort before this division is reached.

The UPK Demo program demonstrates key definitions and descriptions which will help you to practice using the UPK Editor. ☐

Table 1

SYS Command	Function
SYS49152	Initiate UPK
SYS49155	Call the Editor
SYS49161	Abandon data Output
SYS49164	Wait for key press
SYS49167,"filename",device number),1	Save key definitions
SYS49170,"filename",device number),1	Load key definitions

HUSH 80CD — FULL 80 COLUMN DOT MATRIX SILENT PRINTER — £76



COMMODORE 64 PRINTER

Designed and manufactured in Silicon Valley, USA, now also manufactured in Europe.
ADVANTAGES • 80 Column thermal printer • 80 CPS (36 characters) • Cost adjustable graphics
 • Very quiet operation | 18000 lines for standard paper roll (8 1/2" x 10 1/2" for paper)
 • 50-100 characters per line • Paper controlled intensity

Also available from Epps, full range of Hush 70, 80, 90, also other printing at just £100.
 Suitable for (GSA, BGL, ADOBE and most others)

SPECIAL — JUST ARRIVED — LOW COST PRINTER (8000) — 1984 — FOR COMPACTRUM ONLY £76

Telephone for information: 0201-802200
 Telephone for orders: 0201-802200

Post to: EPSON (UK) LTD, Unit 7B, Selwyn Road, Park, Barksdale, Co. Dublin, Ireland

Please supply:
 Hush 80 CD Hush 80M
 Hush 80nd Hush Parallel
 Hush 800 Drive Hush 80Rend
 Hush 80Rend

Post Order Cash VISA

Card No.

Expire Date

Name

Address

Post Code

Signature for VISA

Ref: 12345

STACK COMPUTER PRODUCTS

C64 C128 128D



£20

3.5" DISK (10)
 100% QUALITY
 100% RELIABLE
 100% DURABLE

C64 128 128D VIC20

LIGHTER



£18

- LIGHTS ANYWHERE
- LIGHTS IN 10 SECONDS
- 100% QUALITY
- 100% DURABLE

LISTING PAPER (1,000 sheets)

11 x 9 1/2" £7.99
 11 x 14 1/2" £9.99

ALL CBMP



£23.50

- 100% QUALITY
- 100% RELIABLE
- 100% DURABLE

C64 C128 128D



FREEZE MOWER & GRASS

- TAPE £22.50
- COPY £22.50

1840 1841 1850 1852

NOTICE



£6

100% QUALITY
 100% RELIABLE
 100% DURABLE

3 1/2" disks (10) in plastic cases

Single sided £13.99
 Double sided £14.99

£20.50



£13.99

100% QUALITY
 100% RELIABLE
 100% DURABLE

C64 128 IN 64 MODE

- EXPERT WITH ESM £29.95
- FREEZE MACHINE £28.95

CBM64 CASSETTE ALIGNMENT KIT £4.75

840 841 850 851 852



£8.50

£8.99

- 100% QUALITY
- 100% RELIABLE
- 100% DURABLE

840 841 850 851 852



£8.50

- 100% QUALITY
- 100% RELIABLE
- 100% DURABLE

840 841 850 851 852



£8.50

- 100% QUALITY
- 100% RELIABLE
- 100% DURABLE

840 841 850 851 852



£8.50

- 100% QUALITY
- 100% RELIABLE
- 100% DURABLE

840 841 850 851 852



£8.50

- 100% QUALITY
- 100% RELIABLE
- 100% DURABLE

1240 PRINTER, PLOTTER



ROLLS

£22.99

ROLL OF PAPER
 1240 1240 1240 1240

ALL CBMP



PRINTED

£20.99

- ALL CBMP COMPATIBLE
- ALL CBMP PRINTERS
- ALL CBMP PLOTTERS
- ALL CBMP PAGES

C64 128



INTERFACED

£28.99

- INTERFACED - C64
- USE 100% QUALITY
- USE 100% RELIABLE
- USE 100% DURABLE

CBMP

- 100% QUALITY £2.75
- 100% RELIABLE £2.75
- 100% DURABLE £2.75
- 100% RELIABLE £2.75
- 100% DURABLE £2.75
- 100% RELIABLE £2.75

64 128 128D VIC



RESET SWITCH

£12.99

- 100% QUALITY
- 100% RELIABLE
- 100% DURABLE

NEW PRODUCT



£25

100% QUALITY
 100% RELIABLE
 100% DURABLE

NEW PRODUCT

MODEL	128	128D	128D	128D	128D	128D
128	128	128	128	128	128	128
128	128	128	128	128	128	128
128	128	128	128	128	128	128
128	128	128	128	128	128	128
128	128	128	128	128	128	128
128	128	128	128	128	128	128

NEW PRODUCT

MODEL	128	128D	128D	128D	128D	128D
128	128	128	128	128	128	128
128	128	128	128	128	128	128
128	128	128	128	128	128	128
128	128	128	128	128	128	128
128	128	128	128	128	128	128
128	128	128	128	128	128	128
128	128	128	128	128	128	128

C64 128

- 100% QUALITY
- 100% RELIABLE
- 100% DURABLE
- 100% RELIABLE
- 100% DURABLE
- 100% RELIABLE

C64 128

- 100% QUALITY
- 100% RELIABLE
- 100% DURABLE
- 100% RELIABLE
- 100% DURABLE
- 100% RELIABLE

VIC MODULATOR



£16.99

- 100% QUALITY
- 100% RELIABLE
- 100% DURABLE

VIC 20

- 100% QUALITY
- 100% RELIABLE
- 100% DURABLE

£12.99

£16.99

£16.99

THIS IS A GENUINE LIMITED PERIOD SALE ENDING LAST DAY FEBRUARY 1988

FREE 40 PAGE CATALOGUE AVAILABLE ON REQUEST

PRICES INCLUDE VAT

P&P 50p U.K. (FREE OVER 100)

OVERSEAS £3.99

NEEDMORE
 (Distribution) Ltd
 28 Forsters Way
 Welwyn Garden City
 Herts SG8 4LJ
 Tel: 091-921 2301

Games Reviews

Make sure you don't end up with a boring game - check our review pages each month

HYBERBLOB

In the intelligence stakes, blobs rate somewhere between Leeds United supporters and games reviewers, i.e. almost zero. But nevertheless, they are entitled to their summer holidays just like anyone else. It is just your unlucky lot in life that it is up to you to look after them.

After carefully scanning the glossy brochures, you decide that Calton is the place to take them - 100 screens, paved with squares. When you arrive there though, you find to your dismay that the brochures must have been written by the same people who advertise Spanish hotels. Nothing is quite finished.

As already mentioned, blobs enjoy the simple pleasures of life. All they want to do is bounce gently from the left hand side of the screen to the right. All you have to do is to make sure that there are no holes for them to bounce down and no obstacles blocking their path. This is done by poking up and repositioning the paving blocks. Up to four can be earned at one given time and all that remains is to rebuild the place within the given time limit.

This is an original game that requires quick thought and quick action. The screens get progressively harder but they all look the same so that this is only really going to appeal to people like...

G.R.H.



Twonines:

Title: *Hyberblob*, **Supplier:** *Firebird, First Floor, 64-67 New Oxford Street, London, WC1A, Tel: 01-279 6755*, **Month:** *USA*, **Price:** *£2.98*

Originality: *8/10*, **Graphics:** *3/10*, **Playability:** *3/10*, **Value:** *8/10*

THUNDERFORCE



Oh dear! It's yet another horizontally scrolling, beat-the-living-daylights-out-of-everything-but-moves, type of game. And from Pleasure too who have a reputation for originality. Admittedly it's only a budget price but even so, there must still be a streak of originality left somewhere, mustn't there?

For anyone still reading the review, the scenario goes something like this. You and your partner have discovered some secret information about some underground chemical factories. Your discovery was not without pain though and you were captured by the henchmen who were running this illegal concern.

Imprisoned at the bottom of a very deep dungeon, you have managed to escape from your cell (how isn't made clear) and you're now trying to escape by running the gauntlet past some guards, both human and alien as well as some deadly sledges. To start with, you are armed only with your fists and your guards, being of a sporting nature, decide not to shoot you, but thump you back. As you progress through the levels, you get the chance to pick up various weapons which have been carelessly left lying around - a gun, shield, sword, ball and bowstring. Your escape naturally has to be made within a given time limit but again, you have no idea why.

Conceptually, the game is OK, but as far as gameplay goes, the only unusual feature is that two of you can play together. Come on, Howard, you can do better than this. **G.R.H.**



Touchline:

Title: *Dungeon*. **Supplier:** Hewson Consultants, 288 Milton Parkway East, Milton, Abingdon, Oxon OX14 4EL. **Machine:** C64. **Price:** £2.99.

Originality: 3/10. **Graphics:** 3/10. **Playability:** 3/10. **Value:** 3/10.

Machine: C64. **Price:** £2.99.

Originality: 3/10. **Graphics:** 6/10. **Playability:** 6/10. **Value:** 8/10.

TALLADEGA

Stuck one racing is the name of the game in this game endorsed by Richard Petty, one of America's leading proponents of the art.

Choosing from either the standard oval track or a randomly generated one, your first task is to qualify for the race itself. Controls are a fairly standard left, right, accelerate and brake and there is also a turbo boost which can only be used when you are at full speed although using it is somewhat heavy on the petrol supplies.

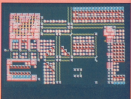
What is unusual for a racing game is that one crash and that's it, you're out of the race. An excellent way to stop you putting your foot down and bouncing off your rivals, a feature of certain other racing games. You are allowed to swap your rivals tactically out of the way however. Other factors that you have to keep your eye open for are engine failure, deflating tyres and low fuel. Any of these requires a visit into the pits. You don't have to do anything special here apart from indicate what you want repaired and watch the clock tick by.

Despite some jerky scrolling, Talladega proved to be highly playable and at under two pounds, is not going to break the bank. **G.R.H.**

Touchline:

Title: *Talladega*. **Supplier:** Top Top, 111, 12 Chiswick Enterprise Centre, Swaine Road, Uxbridge, Berks UB7 4AA.

SPORE



After an accident in a biochemical laboratory, you are the person selected to retrieve the antidote. Genetically altered spores are running riot and, as luck would have it, the only supplies of the antidote are hidden deep within said.

Spore is a Gauntlet clone in so much as it is a top-down view of each sector with generators churning out spores as fast as they can. There are a number of bottles in each sector which must be collected before progressing. Other items include extra energy supplies and temporary invulnerability potions.

The spores and generators are contained by a series of electrical barriers which, although impenetrable, can be switched off. The barriers can also be shifted by shooting at some two-way mirrors. This is all well and good but in practice, after the first few tentative games, you tend to ignore all this and just waste in guns blazing.

Spore is a highly enjoyable budget game, ideal for a quick half-an-hour thrash and should you manage to save

the universe, there is always a screen disaster for you to play about with, so it won't be quite so easy the next time.

G.R.H.

Twofish:

Title: *Spore*. **Supplier:** Macrotronics (*Builder* label) 8-10 Paul Street, London EC2A 4DT. **Tel:** 01-277 6880. **Machine:** C64. **Price:** £2.99.

Originality: 5/10. **Graphics:** 8/10. **Playability:** 8/10. **Value:** 8/10.

BLACKWYCHE

Do you remember arcade adventures? They were all the rage a couple of years ago but seem to have died a death recently, to be replaced by Gauntlet clones and beat-'em-ups. One of the top producers then was Ultimate and their games have won a new lease of life by being re-released by Macrotronics at a budget price.

Blackwyche is a series of games featuring Sir Arthur Pendragon. Our hero has just discovered a ghostly ship and finds himself inexorably drawn towards it. Boarding the *Blackwyche*, Sir Arthur finds himself in the Captain's cabin. The logbook shows that Captain Cavendish and his crystal discovered the legendary Crystal Skull of Sooth. The power of the Skull had proved too much for them though a and in one last desperate message in the logbook, Captain Cavendish pleads for someone to come and release his soul which is hidden somewhere on the ship.



Sir Arthur must explore the ship, depicted in a raised 3D perspective, finding various items and then working out what to do with them. First priority has got to be finding the skull so without it, life is going to be very short indeed. Travelling the ship are a series of ghosts, skeletons and flying octopuses. Contact with any of these creatures drains some more of your precious life blood. Some creatures, those that materialise and fly towards you can be killed but others, usually those protecting something important, prove to be immortal and have to be dodged.

The game does look rather dated now with some very blocky graphics. The C64, unlike the Spectrum, does not really lend itself to games of this type and even at budget price, you may want to try before you buy. G.R.H.

Twofish:

Title: *Bobbleglo*. **Supplier:** Macrotronics (*Builder* label) 8-10 Paul Street, London EC2A 4DT. **Tel:** 01-277 6880. **Machine:** C64. **Price:** £3.99.

Originality: 8/10. **Graphics:** 5/10. **Playability:** 6/10. **Value:** 6/10.

BOBSLEIGH

If you think that bob is just a name for somebody called Robert, or that the Cresta Run is a drink, then perhaps you're not quite ready for the bone-crushing, skull-smashing winter sport of Bobbleglo. Will you be ready to lead the British challenge at the Olympics in Calgary? Probably not, but you'll have fun trying!

Your first problem once the game has loaded is to get a bob but since your sponsors have only coughed up £12,000 in cash you are forced to pick the cheapest, which unfortunately, is also the slowest. You also have a team who are desperately unfit and must train hard if they're going to stand a chance.

Training the team costs 6500 and means a few seconds of frantic joystick wiggling which will improve your team if you wiggle quickly enough. As your fitness improves so does your strength to push the bob (until your arm. This involves more joystick wiggling but the maximum speed you can reach depends on your fitness. So if your computer fitness is poor a amount of wiggling will improve your speed.

Once you've pushed off the race enters the second phase as you guide your bob down the course, riding the banks to gain speed and avoiding the walls that will slow you down and damage the bob. If you survive the trip down the 3D track you'll get a time and maybe even some championship points.

Bobbleglo isn't just about training and racing as you also have to survive and improve your chances by managing your



sponsorship cash. If you spend money on training you may win more races and get more sponsorship but if you crash or hit the sides of the run and damage the fibro the repair bills could bankrupt you and end your quest for gold. **T.H.**

Touchline:

Title: *Bobaligh*, *Supplier:* Digital Intergration, Watchman Poole Centre, Watchman Rd, Camberley, Surrey, GU15 3AF. *Tel:* 0775 864044. *Machine:* C64. *Price:* £9.95.

Originality: 5/10. *Playability:* 7/10. *Graphics:* 6/10. *Value:* 7/10.

BASIL THE GREAT MOUSE DETECTIVE



The scene is 221B Baker Street. In the basement sits Basil the greatest mouse detective in all of Mousedom. Unfortunately, his latest case has led to the kidnapping of his friend Dr Dawson who is now in the evil clutches of Professor Ratigan.

To rescue your chummy friend (and incidentally solve the case) you must track down the evil Professor by collecting clues that will lead from the shops and docks of London through London's sewers and into Ratigan's den.

These clues are found in neatly packed cylindrical containers that are spread throughout the ladders and ramps of the game's screens. However, the fiendish Ratigan has sneaked in eight extra containers complete with false clues. Therefore, whenever you have collected five clues you must press the 7 key which will tell how many correct clues you have! If you haven't got five it's up to you to find out which ones are the old huggings.

In addition to the clues you can also find those to top up your energy which is lost by contact with Ratigan's minions and mousetraps that can be dropped to trap these nasties.

T.H.

Touchline:

Title: *Basil The Great Mouse Detective*, *Supplier:* Gremlin Graphics, Alpha House, 18 Carter Street, Salford S7 4PX. *Tel:* 0742 734422. *Machine:* C64. *Price:* £8.99.

Originality: 6/10. *Playability:* 8/10. *Graphics:* 6/10. *Value:* 8/10.

RADIUS

The Radius is the most important hyperspace transport route the side of the Starveignan Rift and it's been taken over by aliens. Now you, the bravest, fastest and toughest pilot in the Universe must get it back by taking on the aliens in your Ripley Class Hunter Killer Fighter.

The Radius looks like any other backdrop for this type of standard shoot'em up with aliens attacking in a series of sequential attack waves from those that come at you in an easy to blast straight line formation to a guaranteed life losing reverse assault.

The result of all this is an unimaginative but annoyingly difficult game to play but, all is not lost, as the game also contains a pointer game that you can play while loading and a sub game that's better than the main game. **T.H.**

Touchline:

Title: *Radius*, *Supplier:* Playarc, Mercury House, Colfax Park, Aldershot, Berks RG7 4JH. *Machine:* C64. *Price:* £3.99.

Originality: 4/10. *Playability:* 6/10. *Graphics:* 3/10. *Value:* 4/10.

ZIG ZAG

Zig Zag is a 3D, first way, diagonal, scrolling game in which you play a trainer star pilot who must face the ultimate test, the Matrix of Zog! The maze was created to find the ultimate star pilot and although countless hopefuls have tried, none have succeeded in collecting the Eight Crystals of Zog. Now it's your turn.

The maze consists of 1,400 3D screens through which your ship must fly and fight off the constant onslaught from the attacking maze aliens. Your ship flies around just above the floor of the maze and can only turn around corners by colliding with pyramids that then deflect the ship in a new direction. If you hit a wall you just bounce straight back.

To get around the maze you will have to trigger a series of switches by flying over them or shooting them with your laser that adds new prizes so you can turn around new corners.

You can improve your chances further by gathering credits for every alien you blast. These can then be cashed in at the shop for useful objects such as missiles, shields, infra-red vision, traps of the maze and smart bombs. Pick the right objects and use them well and you may live long enough to reach a maze room that allows you to restart a game from part of the way through the game, infra-red zones that remain blacked out until you buy an infra-red system for your ship and timelocks that must be passed before they close and seal you in forever.

The result is a game that requires a combination of shoot 'em up, mapping and arcade adventure skills. Finally, a hint: If you're going to map the game start in the bottom right hand corner and get a B&K piece of paper! **T.H.**

Touchline:

Title: *Zig Zag*, *Supplier:* Microsoft, Athene House, 66-72 Silver Lane, London EC6P 6AR. *Tel:* 04-377 4645. *Machine:* C64. *Price:* £3.95 (C64) £12.95 (DOS).

Originality: 7/10. *Playability:* 7/10. *Graphics:* 7/10. *Value:* 8/10.



Quite simply, it leaves other word processors lost for words.

WordPerfect 4.1 for the Amiga includes many features not found in other word processors.

Newspaper style columns can be displayed on screen, 100,000 word UK phonetic dictionary word-count, background printing and automatic reformatting increase efficiency.

Line drawing and rulers, search/replace and 5-function maths are invaluable assets.

By using the Amiga's pull-down menus nearly all WordPerfect's features are available at the click of a mouse. This makes learning easier than ever before and

using it a real pleasure. But if you prefer the traditional function keys there is a colour coded template to make life easy.

What you see on the screen is what will actually print. This makes good, professional layouts simple.

Documents are treated as a whole and not a series of pages. Reformatting and repagination after editing are automatic and very rapid.

However fast you type, you will never be too fast for WordPerfect.

To find out more, write to the address opposite.

And see how WordPerfect delivers today what others are still searching for.



SENTINEL
SOFTWARE

Wellington House, New Zealand Avenue,
Milton on Thames, Surrey KT13 8PL
Telephone: (0932) 231 884
Telex: 94885 FIBELUK G

WordPerfect

DataPerfect

PlanPerfect

Library

Executive

Relative File Programming

Learn the correct method of using relative files by following our series. We kick off with relative versus sequential files

By Eric Ramsey

There is alot of mystique surrounding relative filing on the Commodore range of computers which is quite unjustified. Once a programmer has built up a library of routines, relative filing is only slightly more difficult than the sequential storage method but it is far more powerful, much more flexible and quicker in data retrieval.

As a challenge I began relative file programming on the Commodore 64 and have several programs which run very efficiently. Of course, with the new BASIC 7 of the Commodore 128, relative file programming is much easier.

In this series of articles, I hope to show you that when storing large amounts of information you should think automatically of relative files rather than the sequential method. I shall include every routine necessary to set-up, read, write, sort, search and

even delete from relative files of your own.

Let us look at the two ways of storing the data and compare them.

Sequential Files

If you have used BASIC at all on your Commodore you will probably be familiar with sequential files. In fact, a LIST is a Sequential File of a BASIC program, stored on a disk or a tape cassette. If you have only a database, the only means of databasing available to you is a sequential file, but hang on to these articles: you will surely have a disk-drive before long!

Storing the program data from a database is one of the most important questions to consider at the outset, but the question is, which to use? Let us look at the sequential file. Normally, used either on tape or disk drive, this

type of file stores the information FIELD by FIELD, one after another continuously until the end of the File. Normally, the information necessary to collect the data back from the File is given first, i.e.

Name of FILE
Number of FIELDS
Number of RECORDS

These variables are followed by the file data, one after another. The program would read the element information, number of RECORDS and Number of FIELDS, and then in a nested LOOP to read the data had into string arrays inside the computer memory. This method is a simple but effective method of storing the information contained in a database.

Then why not use it? For a small DATABASE of course, this method is quite satisfactory. However, the main disadvantage is its simplicity; the data is stored sequentially on the medium.

(either tape or disk) and therefore must be read from beginning to end.

It is not possible to go immediately to RECORD number 1170, for instance; you must read through all the data until number 1170 is reached and then use it. Suppose there are 7000 RECORDS! The time taken to access a particular RECORD would be enormous, particularly if using tape. If you have just the data on tape then you are stuck with this method.

In order to avoid constantly reading through the data, most sequential files read all the data into the RAM of the computer once, at the beginning of the program, and then write the updated data back into storage right at the end of the program. This is still effective and simple, so what are the problems?

The limitations of sequential files can be broken down into the following:

File size - since all of the data has to be read into memory to reside in the computer while the program is running, then the size of the file is limited to the RAM in the computer, which is expensive of memory and can affect the processing speed and 'Garbage Collection' availability.

Efficiency - all of the RECORDS are contained on the storage medium in one lump, as it were, and cannot be accessed (loaded at) one at a time. This means that the RECORD DATA must be kept in RAM.

Flexibility - while the program is running, all the new RECORDS and updates are in RAM only. A single powercut, even for a second would be enough to lose all the new data. The system is 'fragile' and such an event or a computer 'crash' because of inefficient error-trapping would lose what could be hours of work.

Storage - since all the data is written onto the medium in one operation, the storage is fragile; if there is a problem with the Data write, the operation will continue regardless, but the next time the program is RUN the File Data will not load properly. Result - a system crash and all the previous work is useless because the Data is unobtainable.

So, despite the ease and simplicity of sequential file programming, we shall consider instead the merits of the relative file type.

Relative Files

In relative file programming really worth all the extra effort of

programming? The advantages over the sequential file can be summarised as follows:

File Size - the relative file RECORDS are written individually on the disk, so the relative file size is not dependent on the computer memory but the limitation of the relative file size permitted on the 1541 or 1570+1 disk-drive. In all cases, strangely, this limitation is 167152 bytes (even on the 1571 double-sided drive).

Efficiency - because each RECORD is placed in its unique position, each can be accessed with one operation controlled by the program. It is no longer necessary to read through the whole file at the beginning of the Program RUN.

Flexibility - because the RECORDS are written individually on the disk storage medium a system crash or power failure does not mean the loss of any data except the very last RECORD write-operation.

Storage - since the RECORDS are written as they are entered, any problems affecting the write operation would be signalled at once and would only affect that single RECORD.

There is an advantage - massive file sizes are available, each RECORD can be accessed immediately, the system is much less vulnerable to crashes through error or power-failure. There is a price to pay, of course. The maximum relative RECORD size permitted is 254 bytes (characters, including spaces and separators, more of that later).

So the relative file has advantages over the sequential, but has to be programmed more carefully to take full advantage of the facilities. We'll now look at the relative file programming theory.

I have assumed that you already understand the usual statements: PRINT, INPUT, GET, OPEN, CLOSE, and the new BASIC 7 EXOPEN and DCLOSE. You should also have a working knowledge of strings, arrays and variables. If not, perhaps you would be as well to study a short course of BASIC programming first.

Once you have worked through this series you will have a library of BASIC routines to enable you to program a relative file for any purpose, either a full-blown database or a simple relative file. Whichever is required, the methods and program routines needed remain the same.

Let us take a quick look at the theory of relative filing. Instead of the

data being stored in a huge lump on the disk surface ready for reading into memory, the data is written into suitable RECORDS separately onto the medium. The later versions of BASIC have DOS commands which calculate the correct positioning of the read/write operations automatically. Don't despair 64 owners, I shall cover your machine as well.

Here is a simple example. Suppose we need to write a relative file for a disk file. The one I use for my disks has over a thousand program names stored on it! For disk files, which after all is a sort of database, all we need to do is to calculate the length of the RECORDS as it is placed on the disk. What information do we need on each RECORD?

Well, we need the number of blocks, the name of the file on the disk, the type of file and the name of the Disk. So the RECORD would look like this:

File Size	File Name	File Type	Disk name
3 chars	18 chars	3 chars	8 chars

The database therefore has four fields and a total length of 32 characters. Since each character occupies one byte of disk space, the RECORD length is 32 bytes. Easy, so far, isn't it?

There must be one more character on the RECORD than is actually used, so the RECORD length must be shown as 33 bytes.

Now we have to look at the question of separators. Quite simply, there are two ways we can write and read a RECORD in a relative file. We can write the RECORD in one go using a single string, which is the fastest method, or we may separate the FIELDS with a carriage return, a CHR\$(13). Why would we do that?

Let's look at the above example again. The total length of the RECORD is 33 bytes. This can be read in one single operation without any buffer problems. (Remember a single string of 88 characters can be read by the Commodore 64, or 168 for the 128.)

A string can be added together to a total length of 256 characters, but such a string would not be INPUTted in one read because of the buffer limitation. In one case, the length of the RECORD enables us to read the entire record in one operation. I shall be looking at the question of separators in the next article of the series.

The other use of separators is to stop the read of a FIELD within a RECORD. This is really only useful if the length of each FIELD is varied throughout the file. In our case we are going to ensure that each FIELD is exactly the same length, so separators are not required.

Now we know the length of the RECORD we can determine the permitted number of RECORDs in each file. This limitation is imposed by the DOS, and is a total file length of 167,132 bytes. So the permitted maximum number of RECORDs is $167132/33 = 5064$. Since we will be using the routine for different purposes then we shall declare that as a variable, i.e. `AVAIL=INT(167132/33)`.

We are allowed a total of over 5000 RECORDs in the file. Now we can examine ways in which we would OPEN the relative file. In BASIC 7 this could not be easier. If we declare a variable 'LREC' as the length of the RECORD then we open a file with the simple command:

```
open # 5,"file",f:close:all
```

What? Was that it? Yes, but let us look at the RECORD length again. We also need the FIELD pointers, i.e. the place within the RECORD where each FIELD begins. We will need these so that we can display the RECORD and print it out. It would be a bore to work these out, so we could use a FIELD pointer routine to do this for us:

```
1120 rem **** calculate field pointers
1130 lrec=1:REM ** declare length as 1
1140 for a = 0 to c:REM ** C is number of FIELDS
1150 lrec = lrec+field(a):REM ** add field len to LREC
1160 sp(a)=0:REM ** declare field pointer
1170 next a:REM ** end loop
1180 sp(c)=0:REM ** 1st FIELD pointer is always 1
1190 return
```

This routine works for any number of fields in a record. It will work out the total length of the RECORD and the FIELD pointers for each provided that the length of each field is stored in the array FIELD() beforehand. For creating a database, the FIELDS may be any length and any number within a RECORD. If the length of the RECORD is greater than 166, however, an additional routine must be included to allow for the use of a single separator, so that the RECORD may be read back.

```
1184 lrec<154 then 1190
1186 lrec=lrec+lrec *** allow for separator
1190 return
```

Owners of C64 may need even more lines, depending on what sort of write routine you intend to use. More about that later. Instead of the lines shown above, you will need the following:

```
1184 lrec< 88 then 1190
1186 lrec=lrec+lrec *** allow for separator
1188 if lrec < 136 then 1190
1189 lrec=lrec+lrec *** allow for 2nd separator
1190 return
```

I would suggest a loop to INPUT the names and lengths of the FIELDS like this:

```
114 input"Number of Fields Required"n
115 c=c+1:rem **** the Loop starts at 0 so c=1
116 lrec=lrec
117 print"Name of field"n+1
118 inputfield(n)
119 print"Length of Field"n+1
120 inputfield(l)
121 next n
122 if lrec > 154 then go to sub routine:rem ** check for maximum RECORD size
123 goto 241:rem ** now set up the file
```

You may consider standardising the lengths of the FIELD names to, say, ten characters to make it easier to display them on the screen later, like this:

```
125 field(n)=right$field(n),"10"
```

However, if the RECORD length LREC is greater than 254 bytes, since no RECORD can be longer than that, then the FIELDS will have to be edited until, the RECORD as a whole contains less than 254 bytes. It is simple to GOSUB to another routine which displays the FIELDS and requests which one to edit.

Opening a Relative File - BASIC 2

No, C64 owners, I haven't forgotten you; you need the BASIC 2 version of opening a relative file. Your DOS does not take on much of the work for you, but provided you follow the general layout of these lines you shall be able to adapt them for your own programs. You would OPEN the relative file with:

```
OPEN#65,"FILE1"+CHR$(LREC)
```

Once the relative file has been opened, it can be used for both reading and writing RECORDs, another advantage over the sequential file, which can only do one or another and not both.

You would have to open the error channel first in order to read for Disk errors:

```
OPEN#8,13
```

Dealing With Errors

Now we have started using the DOS commands, we will need to check the error channel of the drive every time we access the relative file. You would think that this would slow the program down, but surprisingly it seems to be the reverse. Because the error channel is constantly checked at every read/write operation you will find that the program runs much more smoothly and without errors. This is especially important because in relative files the DOS is working the much harder.

With BASIC levels higher than the nearly 2 of the C64, you might have a DOS assignment. The Plus 4 and certainly the 128 have, and we'll look at this first.

The DS and DSB Command is the built-in disk error command which can be used in direct or program mode. Simply typing 'DSB' and pressing the RETURN key will read the Disk Channel and give a result, normally 00,00,00.

If there was an error, the DS command will clear it and turn off the error light which would have been flashing on the drive.

It is the first number '00' which we are primarily concerned with. The first number is the error number, which we can use to take appropriate action.

The first thing to detect is, of course, that there is no error, and that to return to the main routine as soon as possible. Error numbers less than 20 are not true errors and may be ignored; the error number 00 for instance is an indication that files have been searched.

So we will ignore error less than 20 with the very first line of this Error Check sub-routine:

```
1000 rem **** disk error check routine
1010 if d < 20 then return
```

If we are writing to a RECORD which has not yet been set up, the DOS will actually create it for us without

It has been
both reading
to, another
channel file,
another and

to the error
and for Disk

ing the DOS
to check that
is every time
You would
the program
seems to be
one channel
at every
will find that
such more
over. This is
because in
working that

er than the
might have a
to 4 and
to look

and in the
disk which
gram mode,
aining the
the Disk
normally:

at, the DS
tuff of the
have been

of which we
with. This
number,
appropriate

at is, of
to, and then
transfers us
to than 30
is ignored;
status is an
error been

channel 20
this Error-

ook routine
RECORD 15
to, the DOS
is without

intervention, so we shall ignore the
error number 50. Record not Present")
GOTO 40 = 50 then return

Of course, while writing for
yourself, you may wish to check other
errors, such as the error 71, directory
error which can be corrected with a
collet or validate command. (Yes,
contrary to common belief, you may
do collect or validate with relative
files. Since the DOS of the drive sets up
the relative file and does its own
bookkeeping, there is no danger of the
validate or collect command erasing
the file. The warning about validate or
collet applies to random access files,
which is totally different.)

DISK if disk = 71 then collect return

You may also like to display any
real error on the screen and then
return to the Menu, such as

DISK print "Disk error: getkey/ctrl/quit
Screen ***** return to menu at
DISK, whatever you prefer.

All we need to remember now is to
GOTO 8 to this sub-routine after every
read and write operation.

Disk Error Checking - BASIC 2

The poor old BASIC 2 of the C64 can
do the same, but in a much more long-
winded fashion. The C64 uses the same
error-numbers but there is no DOS
command. We also have to create that
we have opened the Error Channel 15
first. Most people prefer to use the
same file and channel numbers, hence
the "OPEN 15,1,15" above. Since we
have written the DOS or the DS
command, we have to INPUT the
error channel number from the File no
15 on the channel 15 already opened.
We do this with the first line of the sub-
routine:

```

10000 ***** disk error-check routine
1010 input # 15, err%
and then we can continue with the  
remaining checks
1020 if err = 20 then return
1030 if err = 50 then return
1040 if err = 71 then print "D1, 71":
return

```

Now we can add the error check
subroutine to the open file routine of
the program:

```

OPEN:PRINT "FILE" => CHR$(15)
GOTO 1010
and for the DS
DOPEN: S, "F:FILE", L(15)
GOTO 1010

```

Now we have the relative file
opened and the error-checked, now we
have to create the RECORDs to write
to.

Setting Up - BASIC 3.5 +

The DOS will write to each RECORD
whether it has been created or not,
because we have "written-out" the DOS
error, RECORD NOT PRESENT.
However, this is not the most efficient
way of doing it. If we ask the DOS to
write to the highest number of
RECORDs which we might need, the
DOS will create that RECORD first,
and then go on to create the
RECORDs below it down to
RECORD 1. But we have to tell it to
do this.

With BASIC 7 it is easy; DOS
writes out the correct pointers for each
RECORD; all we need is to tell it the
RECORD number of the LAST
RECORD required and the DOS will
then create all the RECORDs up to it.
This can take some time because even
the 1571 writes only about three
RECORDs per second.

For five thousand RECORDs
three would be a long delay while
these were being created which is very
boring. You might consider creating
the RECORDs in blocks of fifty,
creating the next batch of fifty when
the RECORD number reaches the end
of the created file.

The statement for all read and
write operations is RECORD . The
number after the symbol is that of
the file previously opened, in our case
five. If the record to be accessed is a
variable, then the variable must be
enclosed in parentheses. The last
number given is the byte number of
the start of the read or write, and here this
is 1.

Now we can program the create file
subroutine.

```

3400 print "Creating File" named
3410 print "Records Set at" err%
3420 sleep # 3: name$ = L$(1) / (space$
3430
3440 record # 5: (err% / 10) * 10 + 1
3450 record # 5: (err% / 10) * 10 + 10
3460 print # 5: chr$(255) / (space$ 3410
3470 disk$ = disk$ / 10 + 10 return

```

Notice we make the RECORD
statement twice. This is recommended
by the 1571 disk-drive manual as a
safety measure. The DOPEN file
statement has the name of the file,
NAME\$, enclosed in parenthesis.
Now look at what the poor C64 owner
has to do!

File Create Routine - BASIC 2

Now, C64 Owners, we have to test
you out. The same basic principles

apply, but you have to do more
programming in order to achieve the
same results. We have already looked
at the OPEN statement for the file;
now we have to write another routine
so that the RECORD pointers, (not to
be confused with field pointers) can be
calculated before a read or write
operation is commenced.

We have first to calculate the hi
and lo bytes of the RECORD before
we begin. The RECORD statement is
designed to use on the 64 or the 128 bit
Mode, but we simply program a
separate sub-routine to take the place
of the RECORDS statement.

We write this sub-routine so that it
can be referred to from any part of
the program. We shall need the routine for
every read and write operation. We
can do it near the disk error check
sub-routine:

```

4012 rem ***** 64 Record Pointer
Routine
4014 hi=(int)rp/256:rem**** rp is
desired record number
4016 lo=(rp-256)/64: rem** hi and lo
are the high and low bytes of the
RECORD
4018 return

```

Now, during the program,
provided that the variable RP contains
the desired RECORD to access, a
GOTO 16 to this routine will return the
proper pointers to that RECORD
within the file. Now we can continue
with the file create routine. First we
put a message on the screen to explain
what is happening:

```

3400 print "Creating File" named
3410 print "Records Set at" err%
Then we open the error Channel,
3415 open 15,1,15

```

And then we get to the only print.
Notice that the OPEN statement
contains the string NAME\$. Pay
particular attention to the odd format
of the statement. One mixed comma
within the quote marks will give you a
syntax error.

```

3420 open 5,3,3,"0:" + name$ + ".1",
"chr$(1) / (space$ 3410)

```

We use the record pointers routine
to find the hi and lo bytes of the
RECORD by declaring the variable as
equal to err%.

```

3425 open (err% / 10) * 10 + 10 rem** get
Record pointers

```

And then we position the pointers
before we do anything. You do not know
we use the Command Channel 15 to
position the pointer. The CHR\$(96+3)
is a constant used to keep the file
compatible with the way BASIC files

work. Always use the number 99, then add the file number (not the command file no 15) to it.

```
2430 print #15,"*"chr$(99+37)or
chr$(chr$(99)+goash$10)
```

We repeat the statement for safety. Notice this time I have simply added the file number 3 to 99 to provide the channel number.

```
2440 print #15,"*"chr$(99)or chr$(
chr$(chr$(99)+goash$10)
```

Thus having positioned the pointers to the correct highest RECORD number, we write the special null character to the RECORD. Notice that the PRINT statement uses the file number and not the command channel to write to the RECORD.

```
2450 print #3,chr$(255)goash$10
2455 Closegoash$10
2460 Close 15:return
```

Here we have closed the file and checked the disk for errors BEFORE closing the command channel 15. It might be easier to simply open the command channel right at the beginning of your program and let it open throughout, only closing it when all accesses have finished, but here I

close it to make the point.

Although there is no sign of it from the program, the DOS of your disk drive will take over now, and create all the RECORDS in the file ready for future use. For this reason you might consider setting the variable AVAIL to, say fifty RECORDS to begin with, and then creating the RECORDS in batches of fifty, otherwise you may have quite a wait until 4099 RECORDS have been created.

They are all the routines you need to create a relative file ready for use. Remember, you must specify the length of the RECORD LREC. You should have already decided on the length of each of the FIELDS and assigned these lengths to the FIELD array, and declared the number of FIELDS to the variable C.

If you have done that, the FIELD Pointer sub-routine will work on everything else the program needs. String or numeric variables may be used with either BASIC 7 or 2, but those using the C64 MUST be very careful not to omit the commas inside the quote marks.

In order to use a relative file, it is

important to get the routines in the right order. Use them as follows: Get the name of the file into NAME1. INPUT the FIELD lengths into the Array FIELD(), with C as the number of FIELDS you require. GOSUB to the field pointer routine. The length of the RECORD will be returned as LREC.

Use the AVAIL variable to calculate the permitted maximum number of RECORDS in the file. GOSUB to the file creation sub-routine. C64 owners will need to GOSUB to the special RECORD pointers sub-routine for the relevant bytes required. DO NOT forget the Disk-Error check for EVERY disk access.

The file will then be set up ready for use.

In the next part of the series, I will be detailing routines for colleting the different FIELDS into a single STRIP() for writing and then reading them from the RECORDS. I shall explain the use of the FIELD separators a little more fully later as to that you may decide for yourself how to use them.

GEOS INSIDE AND OUT

A thorough program to effectively view GEOS, whether you are a beginner or a veteran user. From 1988, GEOS, GEOS FOR HELP, GEOS FOR HELP (EDIT), GEOS FOR HELP (PRINT), GEOS FOR HELP (DELETE), GEOS FOR HELP (COPY), GEOS FOR HELP (MOVE), GEOS FOR HELP (RENAME), GEOS FOR HELP (ERASE), GEOS FOR HELP (SEARCH), GEOS FOR HELP (FIND), GEOS FOR HELP (GOTO), GEOS FOR HELP (STOP), GEOS FOR HELP (START), GEOS FOR HELP (END), GEOS FOR HELP (QUIT).

From \$9.95

NEW GEOS TRICKS & TIPS

A collection of 100+ new tricks and tips that will help you to use GEOS more effectively. From 1988, GEOS TRICKS & TIPS (EDIT), GEOS TRICKS & TIPS (PRINT), GEOS TRICKS & TIPS (DELETE), GEOS TRICKS & TIPS (COPY), GEOS TRICKS & TIPS (MOVE), GEOS TRICKS & TIPS (RENAME), GEOS TRICKS & TIPS (ERASE), GEOS TRICKS & TIPS (SEARCH), GEOS TRICKS & TIPS (FIND), GEOS TRICKS & TIPS (GOTO), GEOS TRICKS & TIPS (STOP), GEOS TRICKS & TIPS (START), GEOS TRICKS & TIPS (END), GEOS TRICKS & TIPS (QUIT).

Customer orders \$9.95

SPECIAL OFFER: Both GEOS books for \$19.95!

CADPAK Enhanced Version! For C-64 or C-128

CADPAK is a powerful tool for computer aided design and drawing. Using either the keyboard or mouse, you can create, edit and view 2D and 3D drawings. Features include: AutoCAD compatibility, 2D and 3D wireframe, hidden line removal, shading, text, dimensioning, layers, and a user-defined palette. CADPAK also includes a built-in CAD editor for creating and editing 2D and 3D drawings. CADPAK is available on floppy disk or hard disk. For more information, contact: The Commodore Software Library, 15155 W. 26th Ave., Suite 100, Westminster, CO 80031. Phone: (303) 426-5600. Fax: (303) 426-5605.

Computer & Printer \$99.95
 20MB Hard Disk \$299.95
 40MB Hard Disk \$399.95
 80MB Hard Disk \$499.95
 Mouse \$49.95

30MB Hard Disk \$149.95
 60MB Hard Disk \$249.95
 Customer Line \$69.95

The \$299.95 price includes 100% warranty. Free shipping, except outside the United States. Please allow 4-6 weeks for delivery.

NEW! Our CADPAK package, not available elsewhere, will sell you the Commodore 64 faster than you can say "GEOS".

COMMODORE (Int'l), 20 North Avenue, Rochdale, Lancs., OX11 1SL, UK. Orders accepted by telephone 0758-62440.

START SOFT

MAIL ORDER SPECIALISTS

INCREDIBLE LOW PRICES!

ALL DISKS CARRY A NO QUOTE REPLACEMENT GUARANTEE AND CERTIFIED 100% ERROR FREE & COME WITH LABELS & 1/4" ALSO HAVE SLEEVES & WHITE PROTECTIVE FLIP SIDED DISKS HAVE 3 INDEX HOLES AND 7.5 LIPS ONLY.

SPECIAL OFFER

25 50	25/50 5.25*	25/50 & 50 5AP LOCKING DISK BOX	25 50
50 50	50/50 5.25*	50/50 & 50 5AP LOCKING DISK BOX	25 50
100 50	100/50 5.25*	100/50 & 50 5AP LOCKING DISK BOX	25 50
25 100	25/100 5.25*	25/100 & 100 5AP LOCKING DISK BOX	25 50
50 100	50/100 5.25*	50/100 & 100 5AP LOCKING DISK BOX	25 50
100 100	100/100 5.25*	100/100 & 100 5AP LOCKING DISK BOX	25 50

3" SPECIAL OFFERS

25 50	25/50 5.00*	25 50 50 5AP LOCKING DISK BOX	25 50
50 50	50/50 5.00*	50 50 50 5AP LOCKING DISK BOX	25 50
25 100	25/100 5.00*	25 100 100 5AP LOCKING DISK BOX	25 50
50 100	50/100 5.00*	50 100 100 5AP LOCKING DISK BOX	25 50

100TR UNBRANDED 100	25	50	100	500	10 10 6 888
50/50 (AP 100)	11.85	25/50	51/50	60/50	7
50/50 (AP 100)	13.85	20/50	51/50	10/50	7

CLMATA DRIVES

1140 81 1 MB (80KYTE)	159.95
AMDA 1 80/80KYTE	159.95

NO ADDITIONAL FEES OR POWER SUPPLY REQUIRED

LOCKING DISK BOXES

1 1/2" HOLDS 10	7.95
1 1/2" HOLDS 25	9.95

1 1/2" HOLDS 100	9.95
5 1/4" 240/25 80 9" 10 5	9.95

Just write for more information. Cheques etc. payable 579981 6047. International orders sent in pounds sterling by bank draft only. All orders under 4000 are sent airpost unless you wish to be insured by S.A.F. All include 10% value added tax. Goods in stock unless otherwise stated.

ADDRESS: START SOFT, 20 NORTH AVENUE, ROCHDALE, LANCASHIRE, ENGLAND.
 CREDIT CARD ORDER LINE - 628 9668 24 HOURS A DAY 7 DAYS A WEEK. S.A.F. 1 845 561. NO ORDER BY 1994AS.
 BRAY YOU SEE IS POWER 1000 P&P

19 CROWN CLOSE, BRIDGEND, BRISBOP'S STORTFORD, HERTS, ENGL 8242 7843

DYNAMIC DUO



We guarantee that this drive is **MORE** compatible than the 1541C



A SUPERB BUNDLING OFFER

- Features . . .**
- Extremely compatible 5.25 inch drive
 - Compact size
 - Low noise
 - Rotational bit switch
 - Real reviews
 - Attractive appearance
 - Talks, no problems
 - One year guarantee
 - Multi-user
 - Direct drive motor

A superb bundling offer that combines the critically acclaimed Accelerator+ with the user sophisticated GEOS (Graphic Environment Operating System). GEOS is the GEM-like operating system for the 54120 from which you can access **geoPAINT**, a full featured graphic workshop, **geoWRITE**, an easy-to-use 80% IBM word processor and the **Desk Accessories** which include Calculator, Notepad, Alarm, etc. Many more extensions are available, such as **geoCALC**, **geoDIB**, etc.

This package formerly retailed for **£49.95**

But you can obtain it absolutely **FREE** with the purchase of an Accelerator+

... my only complaint was that the label on the front of the drive was a bit cracked.

20th Oct

... The Accelerator behaved admirably throughout, it does exactly what the 1541 does...

Commodore User

... the drive does have definite improvements over the 1541 in quality and reliability.

COMPUTER'S Gazette

22nd Oct

... I wish the Accelerator had come out two years ago.

Commodore Computing International

... The Accelerator+, though, seems to cope beautifully with commercial software...

Popular Computing Weekly

Further GEOS Applications

Geofile	£24.95
GeoCalc	£24.95
GeoDraw/Deskpack	£21.95
Writer's Workshop	£21.95
Fontpack 1	£18.95
Compell	£18.95



ENHANCE YOUR GEOS

Accelerator+ and GEOS
£159.95

Accelerator+ and GEOS, PLUS Freeze Machine
£179.95

Available from good computer stores or direct from Evesham Micros

Prices include VAT. Delivery FREE.
Send cheque, P.O. or ACC to VISA order.
Or phone with your ACC to VISA PIN.
Send this order to wherever possible.
Govt, educational & PLE orders accepted.
Orders worldwide, 48hrs 5 days 9.00-5.30.
Next day delivery **£8.00** extra.

Evesham Micros
68 Bridge Street
Evesham
Worce, WR11 4SP
Tel: (0286) 765300
Telex: 333204
Fax: (0286) 765354



Evesham Micros

Evesham Micros

Now you don't have to put up with an old fashioned looking computer. It's this smart & modern looking new computer that truly '64 and it will feel like you are using a brand new computer.

- Lower key height
- Modern styling
- Easy to fit

This high quality injection moulded case really will transform your '84, so why put up with an old fashioned image, order your new

THE EMINENCE



**ONLY
£ 19.95**

"... Finding the case to change your old case could present no problem in anyone with your CUSTOMER'S knowledge of how to find and use a computer..."

YOUR COMMODORE

**Your '64
could look
like this**

Selected Products

DISK ROTATOR Enables you to change disks with the turn of a handle. No need to touch the disks. £ 4.95

APPROXIMATE Measurement from start to end of the line. £ 2.95

82 WATT 2500 Great for your 15" monitor. £ 12.95

PRINTABLES A set with 20 disks for up to 200 pages. £ 12.00

8270 Single cassette. £ 2.95

DATA BACKUP One year protection for your data. £ 24.95

154 or 164, 160, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250. £ 88.00

WE HAVE A GOOD STOCK of Commodore diskettes. If you don't see what you want please give us a call.

THE STAIR PRINTERS FOR BUSINESS

NL-10

New! Only price includes 2 rolls Ribbons FREE! (Value £ 13.00)



£ 199.00

- Auto single sheet feed
 - 4x6 inch & 4x6 inch 5x7
 - "Print Ready" mode selection
 - Changeable ribbon
 - 5-line carriage
 - 6-line carriage
 - 7-line carriage
 - Low cost cut sheet feed
 - Supports "NL02"
- THIS IS THE STAIR PRINTER IN ITS PRICE CATEGORY.** The perfect choice for businesses & owners because the interface is changeable. So buy with the 6-line carriage then it can change to another 12 & 18-line. You just fit in a new carriage!
- In a group feed with other popular printers it has the lowest price as well as a 4-line & 6-line carriage. It's just what you need.
- Why write for this?**
• Changeable ribbon with parallel carriage.
• Price includes taxes.

SPECIAL OFFER! PRICE NOW INCLUDES DOLPHIN COPY



DOLPHIN DOS

THE EFFECT IS STAGGERING!

The excellent performance saving range by the Dolphincopy system. The first and best of the best products including System Software, Software, Software, etc. Dolphin Copy is the best on the market. It's the only product that will copy a document without losing any of its content. It's the only product that will copy a document without losing any of its content. It's the only product that will copy a document without losing any of its content.

GET A COPY!

Only one time payment. You'll never see it again. It's the best way to save money.

**ONLY
£ 69.95**

EXTRAS AVAILABLE

2nd set program card	£ 2.95
3rd set program card	£ 2.95
4th set program card	£ 2.95
5th set program card	£ 2.95
6th set program card	£ 2.95
7th set program card	£ 2.95
8th set program card	£ 2.95
9th set program card	£ 2.95
10th set program card	£ 2.95

Some of the Features

- Copy speed 10 lines per second
- Copy speed 20 lines per second
- Copy speed 30 lines per second
- Copy speed 40 lines per second
- Copy speed 50 lines per second
- Copy speed 60 lines per second
- Copy speed 70 lines per second
- Copy speed 80 lines per second
- Copy speed 90 lines per second
- Copy speed 100 lines per second
- Copy speed 110 lines per second
- Copy speed 120 lines per second
- Copy speed 130 lines per second
- Copy speed 140 lines per second
- Copy speed 150 lines per second
- Copy speed 160 lines per second
- Copy speed 170 lines per second
- Copy speed 180 lines per second
- Copy speed 190 lines per second
- Copy speed 200 lines per second

AMIGA 500
The world's most popular 16-bit computer. It's the only computer that can do everything. It's the only computer that can do everything. It's the only computer that can do everything.

Philips CM5000 process
Monitor for each Amiga... £ 120.00
Price includes cables for set 1.
Buy both together for £ 210.00

Disks Boxes

20 100% content 5.25" disks, both 100% and 100% content. £ 12.00

30 100% content 5.25" disks, both 100% and 100% content. £ 12.00

40 100% content 5.25" disks, both 100% and 100% content. £ 12.00

50 100% content 5.25" disks, both 100% and 100% content. £ 12.00

60 100% content 5.25" disks, both 100% and 100% content. £ 12.00

70 100% content 5.25" disks, both 100% and 100% content. £ 12.00

80 100% content 5.25" disks, both 100% and 100% content. £ 12.00

90 100% content 5.25" disks, both 100% and 100% content. £ 12.00

100 100% content 5.25" disks, both 100% and 100% content. £ 12.00

Input Clean-Up

Using the INPUT command can be a very messy business. Here's one way around the problem.

By Kevin Blight

By Kevin Blight

The only problem with the built-in INPUT command on the Commodore 128 is that the user is allowed to type in any combination of characters available from the keyboard. This can cause problems if, for instance, a comma or even worse, inserted commas are entered. In addition, it is only possible to include text in front of the question mark and cursor. A statement which results in a screen prompt such as:

NAME? AGE

It would be useful for a database type of program. Two inputs on one line would result in the word AGE being added to the string entered at the name.

Input Clean-up circumvents these problems and more:

1. Maximum input length is set by the user.
2. The actual input length is stored in a two page location.
3. Upper/lower case switching is disabled.
4. Commas and inserted commas are ignored.
5. Only alpha-numerical characters and

6. punctuation marks are accepted.
8. A delete function is available (using either cursor left or the DEL key).
7. Cursor right inserts spaces.
9. The user will exit from the routine if cursor up, cursor down or the RETURN key is pressed. In any of these cases, a flag is set to indicate which one it was.

Once installed, the new routine is selected by SYS 4864, n. The value of n represents the maximum length of the input and can have any value from 1 to 80 and any value outside this range will cause the routine to abort automatically.

A special cursor is printed during input (similar to an underline cursor) and, if this reaches the maximum length which was set when the program was SYS called, the routine will hand back to Basic program control.

As stated earlier, exit from the routine can be achieved with cursor up and down or RETURN keys. The method of exit is then recorded in location 250:

- 0 Cursor down pressed
- 1
- 2
- 3
- 4 Either maximum length was reached

or RETURN was pressed.

1. Cursor down pressed.
2. Cursor up pressed.

With the correct routine, the values can be used to indicate if the user wishes to go forward or backwards through a list of entries. The length of the input statement is stored in location 251 in Core Page.

Apart from the Basic loader an disassembly, there is also an example listing. This takes the input and stores it as A\$, while its length is stored in A%.

With very little work, Input Clean-up could also be made to run on the C64. Only two of the memory locations specific JMP commands within the routine, the rest of conditional branches and BPPD2 or BPPD4 are both part of a jump table common to both machines.

Change the Basic loader lines as follows:

```
100 DATE 49152,49630
150 DATA FF,A9,26,A2,80,DA,CE,
CB,0485
200 DATA FF,9D,CB,CB,E4,FA,FB
30,0691
410 DATA FF,4C,2B,C0,54,4E,49,55
0564
```

WORLDWIDE SOFTWARE		SOFTWARE	
ADVENTURE	NEW	ADVENTURE	NEW
Adventure 1: The Curse of the Azure Bonds	£19.95	Adventure 2: The Temple of Iai	£19.95
Adventure 3: The Lair of the Green Dragon	£19.95	Adventure 4: The Citadel of Dwellers	£19.95
Adventure 5: The Wizard of Oz	£19.95	Adventure 6: The Temple of the Ancients	£19.95
Adventure 7: The Temple of the Ancients	£19.95	Adventure 8: The Temple of the Ancients	£19.95
Adventure 9: The Temple of the Ancients	£19.95	Adventure 10: The Temple of the Ancients	£19.95
Adventure 11: The Temple of the Ancients	£19.95	Adventure 12: The Temple of the Ancients	£19.95
Adventure 13: The Temple of the Ancients	£19.95	Adventure 14: The Temple of the Ancients	£19.95
Adventure 15: The Temple of the Ancients	£19.95	Adventure 16: The Temple of the Ancients	£19.95
Adventure 17: The Temple of the Ancients	£19.95	Adventure 18: The Temple of the Ancients	£19.95
Adventure 19: The Temple of the Ancients	£19.95	Adventure 20: The Temple of the Ancients	£19.95
Adventure 21: The Temple of the Ancients	£19.95	Adventure 22: The Temple of the Ancients	£19.95
Adventure 23: The Temple of the Ancients	£19.95	Adventure 24: The Temple of the Ancients	£19.95
Adventure 25: The Temple of the Ancients	£19.95	Adventure 26: The Temple of the Ancients	£19.95
Adventure 27: The Temple of the Ancients	£19.95	Adventure 28: The Temple of the Ancients	£19.95
Adventure 29: The Temple of the Ancients	£19.95	Adventure 30: The Temple of the Ancients	£19.95
Adventure 31: The Temple of the Ancients	£19.95	Adventure 32: The Temple of the Ancients	£19.95
Adventure 33: The Temple of the Ancients	£19.95	Adventure 34: The Temple of the Ancients	£19.95
Adventure 35: The Temple of the Ancients	£19.95	Adventure 36: The Temple of the Ancients	£19.95
Adventure 37: The Temple of the Ancients	£19.95	Adventure 38: The Temple of the Ancients	£19.95
Adventure 39: The Temple of the Ancients	£19.95	Adventure 40: The Temple of the Ancients	£19.95
Adventure 41: The Temple of the Ancients	£19.95	Adventure 42: The Temple of the Ancients	£19.95
Adventure 43: The Temple of the Ancients	£19.95	Adventure 44: The Temple of the Ancients	£19.95
Adventure 45: The Temple of the Ancients	£19.95	Adventure 46: The Temple of the Ancients	£19.95
Adventure 47: The Temple of the Ancients	£19.95	Adventure 48: The Temple of the Ancients	£19.95
Adventure 49: The Temple of the Ancients	£19.95	Adventure 50: The Temple of the Ancients	£19.95
Adventure 51: The Temple of the Ancients	£19.95	Adventure 52: The Temple of the Ancients	£19.95
Adventure 53: The Temple of the Ancients	£19.95	Adventure 54: The Temple of the Ancients	£19.95
Adventure 55: The Temple of the Ancients	£19.95	Adventure 56: The Temple of the Ancients	£19.95
Adventure 57: The Temple of the Ancients	£19.95	Adventure 58: The Temple of the Ancients	£19.95
Adventure 59: The Temple of the Ancients	£19.95	Adventure 60: The Temple of the Ancients	£19.95
Adventure 61: The Temple of the Ancients	£19.95	Adventure 62: The Temple of the Ancients	£19.95
Adventure 63: The Temple of the Ancients	£19.95	Adventure 64: The Temple of the Ancients	£19.95
Adventure 65: The Temple of the Ancients	£19.95	Adventure 66: The Temple of the Ancients	£19.95
Adventure 67: The Temple of the Ancients	£19.95	Adventure 68: The Temple of the Ancients	£19.95
Adventure 69: The Temple of the Ancients	£19.95	Adventure 70: The Temple of the Ancients	£19.95
Adventure 71: The Temple of the Ancients	£19.95	Adventure 72: The Temple of the Ancients	£19.95
Adventure 73: The Temple of the Ancients	£19.95	Adventure 74: The Temple of the Ancients	£19.95
Adventure 75: The Temple of the Ancients	£19.95	Adventure 76: The Temple of the Ancients	£19.95
Adventure 77: The Temple of the Ancients	£19.95	Adventure 78: The Temple of the Ancients	£19.95
Adventure 79: The Temple of the Ancients	£19.95	Adventure 80: The Temple of the Ancients	£19.95
Adventure 81: The Temple of the Ancients	£19.95	Adventure 82: The Temple of the Ancients	£19.95
Adventure 83: The Temple of the Ancients	£19.95	Adventure 84: The Temple of the Ancients	£19.95
Adventure 85: The Temple of the Ancients	£19.95	Adventure 86: The Temple of the Ancients	£19.95
Adventure 87: The Temple of the Ancients	£19.95	Adventure 88: The Temple of the Ancients	£19.95
Adventure 89: The Temple of the Ancients	£19.95	Adventure 90: The Temple of the Ancients	£19.95
Adventure 91: The Temple of the Ancients	£19.95	Adventure 92: The Temple of the Ancients	£19.95
Adventure 93: The Temple of the Ancients	£19.95	Adventure 94: The Temple of the Ancients	£19.95
Adventure 95: The Temple of the Ancients	£19.95	Adventure 96: The Temple of the Ancients	£19.95
Adventure 97: The Temple of the Ancients	£19.95	Adventure 98: The Temple of the Ancients	£19.95
Adventure 99: The Temple of the Ancients	£19.95	Adventure 100: The Temple of the Ancients	£19.95

PLEASE ORDER YOUR DISCOUNT PRICES OF 19.95 ONLY FROM THE WORLDWIDE SOFTWARE STORE

WORLDWIDE SOFTWARE STORE (UK)
1 Bridge Street, Southampton SO1 1EW Tel: 0800 17000

OFFICIAL COMMODORE/AMIGA DEALER

COMPUTERS

Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00

PRINTERS

COMMODORE 2040 PICO/COLOUR TEXT & FULL GRAPHICS FOR	£250.00
Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00

SOFTWARE

Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00
Amiga 2500 - 10MB 1000 Series	£229.00

ALL PRICES INC. V.A.T. DELIVERY IN EUROPE DELIVERY OF SOFTWARE & S.O.S. 24/7

Delta Pi Software Ltd

BRIMLEY LANE, WHITBY, N. YORKS YO21 1HG
Tel: 0904 300000 (Days Even)

MUSIC GRADE EXAM TIME?

You need instant cues for music exams - Perfect Fourth **AURAL** trains you.

In every music grade examination, a section is devoted to ear testing which is called an aural test. Although the actual marks allowed for this test amount to just under a fifth of the total marks available, lack of practice in this section can profoundly affect the whole examination result.

You will no doubt remember the nervousness that you felt during your school (or even professional) exams, if you know that you were weak in a particular subject, or perhaps even just an area of a subject.

So it is with music examinations. But with one major difference. *Aural* can be the only part of the grade exams where the student can practice alone. A skilled pianist is essential. Without this help, you will be entering the exams with a gap in preparation with the result that confidence is topped. And nervousness can adversely affect the whole performance.

The result? A mixed distinction or merit, but even worse... overall failure.

And this tragic state of affairs is not the fault of the student. If no pianist is available to

help, then you can't practice aural, having to rely on stretched moments from the weekly music lessons.

You will surely agree with music teachers that this is a totally unacceptable state of affairs. Daily practice is the only certain answer.

Recognising this urgent need, a practicing music teacher set about solving the problem. After four years work and in consultation with the examining boards, Perfect Fourth **AURAL** was created. Today you can practice aural daily in your own home, totally without help.

Perfect Fourth **AURAL** is a remarkable computer program designed to be used on popular home systems, enabling absolutely no computer or piano skills at all. If you can play a game - you can use aural.

Not only is **AURAL** intelligent - it will randomly select one of over 250 different tests available on each program - it will even show you how to conduct with cleverly synthesized graphics. This program is field-tested and has already helped students to play with much more confidence and greatly improved results.

This is what top teachers and performers

say about Perfect Fourth **AURAL**.

GRAHAM LYONS, Performer, composer, teacher and author of the highly successful book, *Take Up The Clarinet, 'It's for You'* which this package has been available year ago.

JANE PICKLES, Principal Clarinet BBC Concert Orchestra "An answer to many a harassed instrumental teacher's prayer."

DAVID FARNON MACCANNIE ARCM, Composer, Conductor, Performer and Teacher, "An excellent approach to aural training."

Available now for Commodore 64/128
Prices include VAT and U.K. delivery.

Grades 1 and 2 on one tape	£18.00
Grades 1 and 2 on 1 disk 5 1/4"	£18.00
Grades 3, 4 and 5 separately	each tape
	each disk
	£18.00

Overseas order - Sterling only - add £10.00 AURAL

Chèque/Pds payable to:
PERFECT FOURTH SOFTWARE,
11 BRIMLEY LANE, WHITBY, N.Yorks YO21 1HG
0904 3011
Fax 0904 0561 024 0 162000



Reveal Your Characters

*Sprites don't have to be visible to be effective.
Here is one way to get them to work for you.*

By Simon Clarke

High resolution sprites are usually visible, coloured characters which show up well against the background colour. In other words the colour of the 'on' Pixel differs from the background colour. In some of my commercial games I have found an interesting use for invisible sprites - solid sprites set to the current background colour - to sensibly reveal text onto the display screen.

An unexpanded sprite, Sprite 0, is created as a solid block of colour measuring 8x8 pixels, the size of one character. The colour of this sprite is then set to equal the background colour and is placed on the screen where the first character of the text will be placed.

As the sprite sweeps across the colour pixel by pixel, the first character is revealed. Once the sprite has moved far enough to reveal all of the characters, the next character is joked into position and revealed.

This process repeats until all of the characters are displayed giving

the impression that they have been printed pixel column by pixel column. This technique opens up several possibilities for the programmer and a few suggestions follow.

Larger, expanded sprites could reveal larger blocks of text or large user-defined characters by switching on all of the sprite pixels.

Two sprites could reveal text from either end of a line but try to arrange that they overlap at the middle of the text, line over a space or the illusion will be spoiled.

Complex reveal techniques can be developed by using specially shaped sprites. An example of this would be to create the top corner of the sprite in Figure 1.

'Each', is an all pixel and the 'X' represents a switched on pixel. The effect created is that each pixel row is revealed pixel by pixel. As the second row of the first character is revealed the next character starts to appear.

By joking values to the sprite

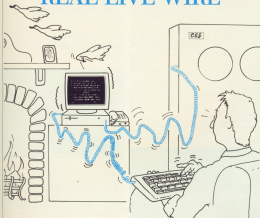
```
..... XXXXXXXX
..... XXXXXXXX
..... XXXXXXXX
..... XXXXXXXXXX
..... XXXXXXXXXX
..... XXXXXXXXXXXX
..... XXXXXXXXXXXX
..... XXXXXXXXXXXX
..... XXXXXXXXXXXX
```

Figure 1

area according to a predetermined pattern, the ASCII programming could make letters fade into van in an apparently random hi-res pattern. Beam them up, Scotty!

Think about the process for a while and I'm sure that you could adapt my program to all sorts of purposes. Remember there are no restrictions to this process apart from the number of sprites displayable. Use several sprites or even high resolution screens and for an amazingly colourful and impressive result.

COME HOME TO A REAL LIVE WIRE



Inject the power of a mainframe into your micro. MICRONET is the only product that provides you with:-

- Real-time interactive databases
- Free and discounted telesoftware
- M.U.C. (one of the UK's most popular SHARDES™)
- Daily computer news and reviews
- Free PRESTEL™ electronic mail
- Teleshopping - holidays, hotels etc.
- 70,000 PRESTEL users 50,000 Telecon

Gold users

- National and International Teles
- Technical Support and Help Desk

PLUS Access to PRESTEL and Telecon Gold, and there's much more - all for one low cost subscription. Modern owners call us now for an on-line demonstration.

With your first annual subscription MICRONET will give you a free modem. Complete and return the coupon for your MICRONET brochure.

MICRONET

MICRONET, Eastwood House, 5 Herby Hill,
London, EC1R 5BJ. Telephone 01-279 3043
Please send me a free MICRONET brochure.

Name

Address

Tel. Age

Notes 70007 2/88

COM
COM
COM
COM
COM
COM
COM
COM

download
program
also view
com. In-rea
only!

ans for a
you could
all sorts of
are are so
ans apart
display
or even a
d for an
impressive
70

I.Q.

If you've risen above shoot 'em-ups, cast your eye over the latest batch of brain-draining games

Xen



Xen is a tactical maze game that will mangle your mind and you'll love every minute of it.

You must collect masks from fifteen mazes by running one of your own shields over them and the only things that can possibly get in your way are obstacles that always move left and fish that always drop down. It couldn't be simpler. Well, it could be a lot easier, particularly since one wrong move could cost you the entire game.

It's surprising how easy it is to get tripped with numbers to go or crushed by a chicken or a phosmoring fish.

Avoiding such disasters must be your first priority and finding a map the second. This must be collected and come

in four segments and it's almost suicidal to enter a quadrant if you haven't got the map. Only by using the map can you find the correct place to detonate the bombs. There are two types of bombs that blow away walls, either vertically or horizontally and these cannot be wasted.

You'll also have to deal with throwing masks that turn the lights on and off; it's tough to move when you can't see where you're going, and shells that must be shuffled around in between the two shields as you tackle screens that range from the cautious and wussy through explosive entrance and the challenge to the ultimate disaster.

Solve the decoder and you could win your place in the Order of Xen with a badge and certificate to prove it.

A superb game that is a must to all strategy gamers.

T.J.L.

Touchdown

Title: Xen. **Supplier:** Logotron Ltd., Dulles House, Garside St., Cambridge CB1 2EP. Tel: 0223 328250. **Machine:** C64. **Price:** £19.95 (C) £12.95 (Disk). **Originality:** 9/10. **Playability:** 9/10. **Graphics:** 4/10. **Value:** 9/10.

Check Yeager's Advanced Flight Trainer

Check Yeager, the first man to break the sound barrier, meets you 10,000 ft in the real pilot's seat as you push to different altitudes to their limits and then survive.

Before you can climb into a Super 8 or a F-11 you'll have to learn how to fly through the flight instructor and learn

speaks the importance of not having your landing gear ripped off and why it's not safe to stall a plane. The mission uses a camera and messages that are easily followed by joystick movements so that you'll soon realize to join those magnificent ones in those flying machines when you've positioned yourself as such as the slow roll, split 3 and about 1.

As a last price you're on your own as you land on a sandy stretch of the 14 planes can do and the only way to do this is to see what they can't do, they survive the unpredictable storms.

Most flight simulators leave you cold after you've been for a few flights but Chuck Yeager offers you 14 flight missions for the price of one and the chance to risk life and limb as you chase the master on the dead man's chair.

T.H.

**Verdict:**

Title: Chuck Yeager's *Advanced Flight Trainer*. **Supplier:** Electronic Arts, Lemay Business Centre, 11-66 Newton Road, Gilling, Becks, SL1 4JN. **Tel:** 0713 4942. **Machine:** Cost Price (N 29-57) £26.97 (28.14)

Originality: 5/10. **Playability:** 5/10. **Graphics:** 4/10. **Value:** 8/10.

Ops

Can you stop the Opge in his tracks? That's the challenge laid down by *Opge* on the computer version of the classic board game. The *Opge* is a cybernetic super-tank that rules the battlefields of the 21st Century. You command a defence force of infantry, tanks and guns who must defend the advanced command post and stop the *Opge*!

Opge the game is supplied on disk in a standard (compressor) Opge/Micropress box with a manual, tactics book and command card (printed yellow on grey card) and an anti-radiation badge which is mounted on a battlefield where nuclear shells fall like confetti.

Opge the cyborg tank is a massive living machine that actually moves crossing infantry under it's tracks or flying

them with it's anti-personnel mines. There are two types of *Opge* - Mark III and Mark V. Mark III is available with an arsenal of two missiles, a main battery and four secondary batteries that can attack most defences. Mark V is even worse with six missiles, two main batteries and six secondary guns! All of which can fire every turn.

Before the *Opge* begins its relentless journey of destruction the defence can lay its defence by spending armour and infantry points. With these points it can construct a defence to protect the command post. Lose the command post and you lose the game. The defensive player (the human in a one player game) can build his forces from bombers, heavy tanks, missile tanks and the versatile GfVc. The GfVc's are light hovercraft that have the advantage of being able to move both in a line, side before and once after they fire! This means they can strike a weakened *Opge* and then retreat out of range. However, a full strength Mark V will stop these *Opge*.

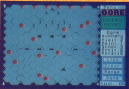
The tactics you will use will vary depending on the *Opge* you face and the defences you have chosen, but will probably be somewhere between the GfVc hit run tactics and the hit and hope however tactics. Whichever tactics you employ you will have never have played a game like *Opge* before, and should relish the challenge of an army trying to stop a single game in a remarkably short time.

Pop-up mines and dragging and dropping of chemistry and increase the pace of the game. Potential *Opge*s should realize it is still a strategy game and will require considerable use of the little grey with if you're going to stop the *Opge*.

The board game version of *Opge* is still available in specialist game shops (and is highly recommended) and was followed by a sequel called GfVc and several articles in hobby magazines detailing the Mark VI *Opge* as well as several and novel actions in the *Opge* world. Perhaps there's a sequel waiting in the wings. If there is I'll be ready, although

I doubt the industry that was created in the last game will be as keen.

T.H.

**Verdict:**

Title: *Opge*. **Supplier:** Opge/Micropress, 2 Market Place, Farnham, Glos. GL8 8JH. **Tel:** 0865 34126. **Machine:** Cost Price £26.97 (28.14) only.

Originality: 9/10. **Playability:** 8/10. **Graphics:** 1-10. **Value:** 8/10.



TETRIS

Have you heard the old saying that the simple games are the best? Here's another one to prove it. It will also give you sleepless nights and no doubt do irreparable damage to your brain. Games like this should carry a government health warning!

The screen display shows a plain rectangle and some "artistic" graphics that try to fill up the screen; however, all the action takes place in the rectangle. One after the other shapes tumble down from the top of the screen and rest when they either reach the bottom or fall on top of another piece. Using the joystick you can move the piece left and right as it falls and rotate it through 90, 180, 270 and 360 degrees by successive presses of the fire button.

The object of the game is to arrange the pieces so that they fit together to form complete lines across the rectangle; this means leaving no gaps. If you manage this your score goes up as the increasing pile of pieces moves down but if you allow the pieces to reach the top the game ends, probably with you heading the joystick across the room in frustration.

The pieces are simple enough and consist of straight lines, L shapes, boxes, shapes and T shapes which fit together nicely if you get them in the right order but the game always seems to throw you exactly the wrong piece at the wrong time! This means you with some difficult juggling to do if you're going to stay in the game. That's all there is to it except to warn you not to go near a mirror; you cannot see play it once. I played it solid for two days and with deadliness to meet that proved expensive. You have been warned!

Trackline:

Title: Tetris. Supplier: Microsoft. Other Names: 99-28 Star Line. London PCAP 448. Tel: 01-277 8645. Machine: C&A. Price: £8.99 (C&A) £12.99 (MSX). Originality: 8/10. Playability: 9/10. Graphics: 5/10. Value: 8/10.

PHANTASIE III

This is (not surprising) the third in the SSI Phantasie series and tells the tales of your brave party of adventuring humans, elves, dwarves, gnomes and halflings joined

together in a common aim to stop the Dark Lord Sildaricus from carrying out his plans to take over the world!

As you begin your quest your thoughts are far from the noble struggle ahead, you and you're all concentrate on just waving alive in the massive Phantasie III world of wilderness, trees and dungeons a packed full of monsters that would love to add you to their menus and you shouldn't be surprised if your entire party is wiped out by the first encounter! In fact, this happens with alarming regularity so you'll get plenty of practice at creating characters and assembling parties. I found the best combination of characters was to have three fighters to beat up anything that moves, a thief to find a bow, pick locks and disarm traps and a wizard and priest to cast spells and heal the party wounded.

Phantasie I and II players will be familiar with the basic game system in which you travel the land in search of items, treasure and magic items and weapons that will help you in your quest but will appreciate the impressive details in the game graphics and gameplay. Now the black landscape is translated into pseudo 3D. It still lings across the screen but is at least more it looks better. As before you encounter food creatures that steal the land but now the action is quicker and the cut and thrust of combat is accompanied by detailed animations. Combat can be complicated as each character must decide whether they are going to stride manfully (intentionally) to the front of the party, stay in the middle or cower at the back, then whether they are going to thrust, attack, slash, parry, cast a spell or fire a bow and arrow. Then the action continues with the monsters building you to the death and one of you drops. If you win the combat you may pick up some gold, some experience points and maybe even a useful magic potion, weapon or armour. If you all die then you're transported to the penal place where a demon decides to destroy you or return you as one of the legion of the undead. You can still fight as normal but you need 100,000 experience points, instead of the usual 4,000, to reach the next level!



The parties accumulated experience is divided between the members when they enter a town and could mean an increase in level if they visited a guild. This level increase not only means more hit points to keep you alive longer but also three chances to improve your characters abilities such as their chance to hit, their ability to parry attacks and their skills at picking locks or disarming traps.

Especially, you will build up a party of hero-worship characters that can survive a surprise attack from the breathing dragons and be ready to track down and take on the Dark Lord himself! The best of the Phantasie games.

Facilities:

Title: *Thrustace IV*. Supplier: *BMG (US Gold, Data 2/1 Midway Way, Midford, Kenton-upon-Avon, BN 74J, Tel: 0127 250 1000, Machines C&A, Price: £70.99 (Disk only), Originality: 5/10, Playability: 8/10, Graphics: 7/10, Value: 8/10.*

GUADALCANAL

One of the bloodiest campaigns in the Pacific Theatre of World War II, the struggle for the island of Guadalcanal lasted five months starting in August 1942. Not only did it take place on the island itself, but also the surrounding sea as the American and Japanese navies struggled to maintain supplies to their own forces while simultaneously trying to destroy the enemy fleets.



The Activision wargame *Guadalcanal* gives you three main scenarios to attempt. A short three day campaign shows you to gain battle experience using the American forces before progressing onto the full campaign where you can play either side.

The game tries to encompass all the major elements of the campaign so the player will have to come to terms with fighting on land, at sea and in the air. Maintaining supplies to your troops, sending out scouts and seaplanes in order to discover the location of enemy forces and attempting to track the enemy's codes while protecting your own are other vital skills.

Control of the game is via a series of ten main icons with many of these leading to a further selection of choices. There are two maps on screen, a small scale one of the area surrounding the island, a large scale scrolling map of the island itself. Units are depicted as are flashing dots or simple characters on the respective maps and I found that these were difficult to read at times. This was especially true when

it came to moving land based troops which involves moving a cursor on the large map and watching the course plotted appear on the small one.

My impression when playing *Guadalcanal* is that the authors tried to include too much with the result that playability has been sacrificed for a authenticity. This is all the more so when coupled with a tricky control system and a poorly designed instruction manual. There is nothing wrong with complexity in a wargame and experienced wargamers will no doubt delight in getting to grips with this game. But for anyone wanting to try wargames for the first time, I would suggest that they look elsewhere. **G.R.H.**

Facilities:

Title: *Guadalcanal*. Supplier: *Activision, 23 Pond Street, Wimpson, London NW2 3PN, Tel: 01 421 1500, Machines C&A, Price: £9.99 (C) (£14.99 (Disk)).*

Originality: 8/10, Graphics: 5/10, Playability: 5/10, Value: 3/10 for beginners, Value: 7/10 otherwise.

NORD AND BERT

This is a departure from the normal *Infocom* style of games in so much as it is eight short stories rather than one long one. The idea is superb, the execution somewhat less so.

The stories are set around the town of Pommer, a somewhat relaxed up place desperately in need of saving out. Each of the eight stories features a different type of word play — ciphers, spoonerisms, proverbs, etc. For example, down on the farms, there are a number of things that need putting right. A field contains a molehill. How do you get rid of it? Simple, you make a mountain out of a molehill! Two birds are molesting your corn so you need to find a stone in order to kill them. And so on.

If this type of wordplay appeals to you, then all well and good but be warned, you will need to be very well versed in American idiom. The main problem with this game is that



There are too many answers that the average Brit will not know and so will have to resort to looking up the solutions in series of solutions are included on the disk. I would not have minded the odd one but I found that I was having to check too many times and in my opinion, that does not represent good value for money especially at just under twenty-five pounds.

G.R.H.

Touchline:

Title: *Lord and Bert Coubert's Make Head or Tail of it*
Supplier: *Activision/Logicon, 25 Pond Street, Monmouth, London NW3 3PN. Tel: 01-417 1331. Machine:* C64 Disk only. **Price:** £24.95.

Originality: 3/10 **Graphics:** n/a **Playability:** 3/10 **Value:** 3/10

OKINAWA

In *Two Jims*, also a PSX wargame, your task was to command US forces in their mission to take the vital Japanese island of Iwo Jima. Now in this latest of the Classic conflict series you can command British and US forces as they storm the equally important island of Okinawa.

If you manage to take the island, you the Allies will be able to build an airbase from which they can launch an attack on Japan. However, this isn't going to be easy as there are thousands of Japanese troops, tanks and gun emplacements as well as submarines and kamakazi pilots to take out your naval support.

The game is played in turns in which you can either move or fire some or all of your units. If a unit moves it can't fire so you have to plan your advance well to direct your firepower in the right places at the right time. As the attack begins there are only Japanese forces on the island (and these are hidden) so you must land your troops at any of the seven selected sights, form a beach head and then start on destroying all in your path.

As the battle rages you'll discover the relative strengths and abilities of infantry, tanks and artillery as well as when and where to use your naval gun support.

Historically, Okinawa was a dress rehearsal for the invasion of Japan and the coalition you'll sustain will show you why the Allies altered their troop estimates from one to five million men and finally opted for the bomb. As a

wargame it plays well and the narrow craggy coast poses any joystick General with a difficult task. T.H.

Touchline:

Title: *Okinawa*. **Supplier:** *PSX, 452 Stroney Station Rd, Carrville, CO9 3PH. Tel: 0202 667326. Machine:* C64 **Price:** £4.99 (C64) £9.99 (Disk)

Originality: 4/10 **Playability:** 3/10 **Graphics:** 3/10 **Value:** 3/10

POWER STRUGGLE

Are you a power mad megalomaniac? If not, here's your chance to see whether you could rule the world as you take control of the East or the West in PSX's *Power Struggle*.

When the game is loaded the program assigns either random countries to each power or the standard setup.

Power Struggle is played in timed turns in which you can issue as many orders as you have time for. If you run out of time you'll have to wait until the next turn by which time you may have lost control of the country.



To issue your orders you simply move a cursor across the map and highlight a country by pressing the fire button. This produces a display that shows the current strengths of that country's army, industry and political power and a second press will activate the command icons through which you can raise more troops, increase industry (industry can then produce armies in a later turn), attack an adjacent country or force (support) another country, supply (and industry) an adjacent country or politically infiltrate another state.

At the end of each turn the computer resolves any combat and the political colour of the world. If any state support you fully then you'll gain total control of them. Control the world and you'll win the game.

To succeed you have to perfect a difficult balancing act between military attacks and their heavy costs in troops and the more insidious political infiltration.

This isn't quite *Colonial Conquest* but as a low level power game you won't struggle to play it. T.H.

Finalizer:

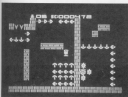
File: *Power Struggle*, **Supplier:** JFS, 452 Stonewy Stanton St., Coventry, CV4 5M6, Tel: 0203 667336, **Machine:** C64, **Price:** £1.99 (Caj) £2.99 (Disk).

Originality: 4/10, **Playability:** 7/10, **Graphics:** 5/10, **Value:** 6/10

SARACEN

Dawson's *Saracen* that's released through the American label by new publisher Mastertronic is one of those really addictive but irritating games that you just can't stop playing. The game casts you as Iblan the Crusader who must battle through 100 mazes to destroy 100 Saracen chiefs. In your way are walls that you can destroy with your arrows, Saracen soldiers that patrol the mazes and a selection of body traps to kill the warrior.

To kill the Saracen Chief and reach the next level you must find and place a grenade (775) next to him and then detonate it with an arrow. However, to get the grenade and reach the Chief you will have to get past patrolling soldiers, find your way through walls, find keys and then the locks they open, avoid killer traps and one way doors, exploding bombs and remove magic doors.



To help you survive you can pick up single shot, single direction arrows (as your bow so you have to make sure you're holding the right arrow at the right time or you'll lose one of your lives).

Luckily, the game is friendly and allows you to continue your next game from the last level you reached, otherwise the game would be impossible. **T.H.**

Finalizer:

File: *Saracen*, **Supplier:** American (Mastertronic), 8-18 Paul Street, London EC2, Tel: 01-277 6880, **Machine:** C64, **Price:** £2.99.

Originality: 4/10, **Playability:** 7/10, **Graphics:** 4/10, **Value:** 7/10

WIZARD'S CROWN

Wizard's *Crown* combines the role playing action of other 525 games with strategic combat in which you can play every move and blow as you battle your way through a perilous quest to retrieve the precious crown of the Emperor. The *Crown* has been stolen by the evil Wizard Tarnum and you and your brave party of adventurers must get it back.

The game begins in a town which has streets full of thugs and thieves to rob you but also provides some easy opponents for you to kill and build up your experience. Also in the town you'll find temples to pray in, lines to rest in and shops to improve your weaponry.

Your party can have up to eight humans in it (you mixed races in this game) that can follow the discipline of Fighter, Ranger, Thief, Priest or Wizard. Each character class has their own strengths and abilities. For example, Wizards can wield powerful magic whereas Priests can pray to heal wounds.

As you build up experience you can rank it in to improve each character's abilities such as skill in a specific weapon or in picking locks, turning the undead, bagging the best price and treat wounds with first aid.

When your party encounters some monsters you can decide whether to let the computer decide the outcome in quick combat or if you don't like this "hidden hand of death" style of play you can act out every cut, thrust and parry of the full battle. In full battle mode you must plan your parties formation to meet the onslaught and then wield swords and spells together to win the day. After the battle you may find items of use that you can pick up and get your priests to patch up any walking wounded.

Eventually, your party will grow in strength and wealth and soon will be ready to leave the relative safety of the town and explore the ruins where goblins lurk in alarming numbers and then on into your quest.

Wizard's Crown is an excellent mix of adventuring and combat and with a playing time of over 50 hours you won't get bored! **T.H.**

**Finalizer:**

File: *Wizard's Crown*, **Supplier:** SS/105 Gold, 2/3 Walsford Way, Alford, Lincs LE10 5JL, Tel: 021-236 1288, **Machine:** C64, **Price:** £18.95 - disk only, **Originality:** 7/10, **Playability:** 7/10, **Graphics:** 3/10, **Value:** 8/10.

Win a Copy of Jane's Fighting Ships



*Win this month's competition and you could be taking to the high seas with your own copy of **The Hunt For Red October***

The Hunt For Red October, from Grand Slam Entertainment (now Argus Press Software) has already received some excellent reviews in the computer press.

Your Commodore is pleased to team up with Grand Slam Entertainment for this month's competition and this is a chance to win one of ten copies of the Hunt For Red October. Furthermore, the first winner out of the hat on the closing date will win their own copy of Jane's Fighting Ships. A rather expensive addition to your book collection.

For those of you not familiar with the scenario for Hunt For Red October, it is based on the book by Tom Clancy and you play the part of the captain of Russia's most advanced submarine, Red October. You are heading for the US of A - to defect. The Russians are of course out to stop you.

How to Enter

Study the two cartoons on this page, there are a number of differences between them. Once you have decided how many differences there are complete the entry coupon and send it to the editorial address (see the coupon). Write the number of differences that you have found on the back of the envelope. If you don't your entry will not be accepted.

The Rules

Entries will not be accepted from employees of Argus Special Publications and Grand Slam Entertainment. This restriction also applies to employees' families and agents of the companies.

The How to Enter section forms part of the rules. The Editor's decision is final and no correspondence will be entered into.

Red October Entry Coupon

Name.....

Address.....

.....Postcode.....

Number of differences found.....

If I win I would like the format of my copy of Hunt for Red October to be:

Commodore 64 tape.....

Commodore 64 disk.....

Amiga disk.....

(please tick as appropriate)

Post to: Your Commodore,
Red October Competition,
1 Golden Square,
London W1R 1AB.

KEEP IT SIMPLE!



THE FINAL CARTRIDGE III[®]

A POWERFUL 64K ROM BASED OPERATING SYSTEM FOR THE C64 AND C128

Easy to use WINDOWS and PULL-DOWN MENUS allow you to select with either mouse, joystick or keyboard more than 60 new COMMANDS and FUNCTIONS.

Various PRINTER-INTERFACES, a BASIC-TOOL-KIT.

Comfortable ML MONITOR including 1541 drive access and sprite-editing, a NOTE-PAD/WORDPROCESSOR with proportional characters, 2 DISKLOADERS with speeds, up to 15 times faster and a state of the art FREEZER Transform your Commodore into a complete new - AMIGA LOOK ALIKE - system.



Reset



Active LED



Freezer



WINDOWS



THE FINAL CARTRIDGE III[®]

The high-resolution bit mapped windows are selected from a menu bar. An unlimited number of windows can be open on the screen at the same time. The windows can be freely moved on the screen. The following windows are already implemented in ROM:

PREFERENCE WINDOW

Selects: mouse port, joystick port, mouse speed, joystick speed, screen colors, pointer colors, keyboard click, keyboard repeat.

CALCULATOR

Complete simulation of a LCD calculator. Input either with mouse, joystick or keyboard. The numeric keypad of the CI28 can be used in O84 mode.

NOTE PAD

Easy to use wordprocessor with proportional characters enables you to store and print small notes, letters, etc.

DIRECTORY WINDOWS

Enables you to open directories from different

disks and drives, sort and print directories.

DISK WINDOWS

Load, Run, Rename, Validate, Scratch, Initialize, Fast format disks.

TAPE WINDOW

Activates fast and normal modes.

PRINTER WINDOWS

Select different printers, such as Commodore serial, Centronics, RS 232C Color printers.

REQUESTER WINDOWS

DISK BASED USER WINDOWS

Design your own windows.

CLOCK

Real Time Clock with Alarm.



FREEZER MENU



THE FINAL CARTRIDGE III®

Innovative hardware, combined with smart software, allow you to freeze and continue every well-known C64 program. Freezer options include:

CENTRONICS/SERIAL/RS 232 SCREENDUMPS

- Full A4 printing • Variable printsize • Color printing • Sprite printing • Reverse printing • Color changes.

GAMEKILLER

- Kills sprite to sprite • and/or sprite to background collision
- Can be started at any point in your game.

AUTO FIRE

- Transforms a normal joystick to an advanced auto fire engine.

JOYSTICK PORT CHANGER

- Never blow up your computer again by changing joystick ports while the C64 is running.

BACK UPS

- Disk to disk • Tape to disk • Disk to tape
- Back up files are packed and reloadable without the Final Cartridge III • 60K in 15 sec. (disk) • Exits to Monitor or Basic.



ML MONITOR

Comfortable ML monitor. Does not reside in memory.

Functions include:

- Scrolling up and down • 64K ROM/RAM access • Sprite editor
- Character editor • Drive monitor
- Fast loading and saving • Printer driver.

PULL DOWN MENU



THE FINAL CARTRIDGE III®

Almost all commands and functions that are not activated by windows can be selected from a menu bar, which appears on top of the screen after pressing the fire button, either in Basic or from the freezer. The following Basic Toolkit and keyboard extra's are included:

- Remamber • Auto • Delete • Old • Help • Kill
- Find • Replace • 24K extra Ram for Basic •
- Append • DAppend • DSave • DOS • Monitor
- Drive monitor • Sprite editing
- Centronics interface • Fast format • Low Res screendumps
- Plot • Scrolling up and

- down • Stops and continues listings • Preprogrammed functionkeys • Packer/Cruncher
- Hex to decimal conversion • Pokes, symbols and variables may all have Hexadecimal values • Trace, Dump, Order, Men.

© 1988 Datacel. Color specified, specifications may change without notice.



Available NOW
only £39.99
POST FREE

Dealer Enquiries Welcome

Copyright and registered trademarks
 Riska B.V. Home & Personal Computers

Wolphaertsteun 230, 3828 MV Boterhoek - The Netherlands, Tel. 033 - 4212982, Telex 25401 a int nl

ALL ORDERS PLEASE QUOTE OUR OFFICE NO 033 4212982

HOW TO ORDER . . .

BY PHONE 033 4212982	BY FAX 033 4212983	BY MAIL 033 4212984
-------------------------	-----------------------	------------------------

DATEL ELECTRONICS

ORDER FOR: DATEL B.V. HOME & PERSONAL COMPUTERS
 WOLPHAERTSTEUN 230, 3828 MV BOTERHOEK, THE NETHERLANDS

NAME ONLY DATEL B.V.	TELEPHONE ONLY 033 4212982
-------------------------	-------------------------------

Adventure Kit IV

This month we look at the all important role of the parser

By Allen Webb

The parser is one of most crucial parts of any adventure. This routine converts the input text into individual words and checks whether they are in the game's vocabulary. In my opinion there is an excessive amount of stobbery associated with parsers. The early Scott Adams games recognised only verb/noun combinations and were therefore tedious to use. Newer parsers such as those in the Paves are highly complex and will handle a wide range of inputs. I find that such complexity is unnecessary and some compromise is adequate. I will now go on to describe a parser which goes some of the way to provide acceptable performance.

In order to keep the code to a reasonable size, the parser makes certain assumptions as to the form of the text. These, however, are not unreasonable. The parser starts at the beginning of the sentence and scans each word in sequence. Any occurrence of "or" is ignored and scanning continues until either seven acceptable words are found or until the end of the sentence is reached. Most words can be of differing forms and there are standard checking routines for each. The acceptable forms are:



Word 1	Word 2	Word 3	Word 4	Word 5	Word 6	Word 7
Noun	Noun 1	Noun 1	Noun 1/2	Noun 2	Noun 2	Noun 2
Adj 1	Adj 1	Adj 1	Adj 2	Adj 2	Adj 2	
Adv	Verb	Verb	Verb	Verb		
Verb	To	To	To	To		
To	Adv	Adv	Adv	Text		
Text			Text			

The results of the scanning process are returned in eight registers. Registers NOUN1, NOUN2, ADJ1, ADJ2 and ADV hold the number of the relevant word. This number refers to the word's position in the

vocabulary tables. The registers WITH and TO hold 1 if the corresponding word is present otherwise they hold 0. The spoke word is also checked. To indicate speech, the relevant text is enclosed in quotes. If

text is found, a register called TLEN returns the length of the text. The text is returned in a buffer.

I'll explain the parser's operation with some examples:

• Input: LOOK

```
VERB: LOOK
ADVERB:
ADJ1:
NOUN1:
ADJ2:
NOUN2:
WITH:
TO:
SPEECH:
```

• Input: KILL THE GREEN DRAGON WITH THE LARGE SWORD

```
VERB: KILL
ADVERB:
ADJ1: GREEN
NOUN: DRAGON
ADJ2: LARGE
NOUN2: SWORD
WITH: 1
TO:
SPEECH:
```

• Input: TAKE THE SWORD QUICKLY TO THE ANGRY GNOME

```
VERB: TAKE
ADVERB: QUICKLY
ADJ1:
NOUN1: SWORD
ADJ2: ANGRY
NOUN2: GNOME
WITH:
TO: 1
SPEECH:
```

• Input: SAY "HELLO" TO THE GORILLA

```
VERB: SAY
ADVERB:
ADJ1:
NOUN1:
ADJ2:
NOUN2: GORILLA
WITH:
TO: 1
SPEECH: HELLO
```

• Input: ASK THE DWARF "WHAT IS THE TIME"

```
VERB: ASK
ADVERB:
ADJ1:
NOUN1:
```

```
ADJ2:
NOUN2: DWARF
WITH:
TO:
SPEECH: WHAT IS THE TIME
```

• Input: LOOK IN THE HOLE

```
VERB: LOOK
ADVERB: IN
ADJ1:
NOUN1:
ADJ2:
NOUN2: HOLE
WITH:
TO:
SPEECH:
```

To use the parser, you use the instruction SYS 74096. A prompt will appear near the bottom of the screen. You type in the text and press RETURN when finished. The results of the parser are then returned in the following locations:

Location

```
VERB: 880
ADVERB: 881
ADJ1: 882
NOUN1: 883
```

```
ADJ2: 884
NOUN2: 885
WITH: 886
TO: 887
SPEECH: starting at 4920
TLEN: 896
```

```
ERROR 1: 898
ERROR 2: 899
ERROR 3: 890
ERROR 4: 891
ERROR 5: 892
ERROR 6: 893
ERROR 7: 894
ERROR: 897
```

If a word is not recognized then the corresponding error register is set to 255 (it normally holds 0). ERROR1, for example, relates to 'WORD 1. All seven error registers are ORed together to get an overall error register (ERROR). This allows you to use a single value to check whether an input is acceptable. Lines 590 to 740 of the editor show how the parser can be used.

The parser code occupies the memory from \$7000 to \$7400 (28572-28974).

The vocabulary is held in four tables as follows:

```
VERBS $7000-$70FF ..... 255 words
NOUNS $7100-$71FF ..... 255 words
ADJECTIVES $7200-$72FF ..... 63 words
ADVERBS $7300-$73FF ..... 63 words
```

The numbers of words in each table are kept in four locations:

```
VERBS: ..... 29875
NOUNS: ..... 29876
ADJECTIVES: ..... 29877
ADVERBS: ..... 29878
```

The editor provides the means to create your vocabulary. The SAVE option saves both the words tables and the locations holding the table lengths.

So how do you use the parser? The best way is to use a routine for each verb. You then use an ON GOTO or ON GOSUB to execute the verb. Here is an example:

```
800 SYS 74096: IF PEEK(887)=255
THEN PRINT "ERROR IN INPUT":
GOTO 800
IF 0 ON PEEK(880)
GOTO 300,500,400,...
```

Each subroutine would then examine the rest of the input words

and take appropriate action. The parser doesn't recognize synonyms, you'll have to do that.

The parser uses line 22 by default for the input. If you want to change this, include the following line in your program:

```
POKE 26722, LN
```

where LN is the prompt line and has values between 0 to 24. It is unwise to use a value greater than 12 since a long input will force the screen to scroll.

The use of the parser and the subsequent interpretation of text is the trickiest part of writing an adventure so be careful to think things through. Try to anticipate nonstandard inputs and try to use witty responses. There's nothing more tedious than getting a repeated reply such as "You can't do that" or "I don't understand".

In the final part of this series, I will look at windows and an interrupt driven event timer. ☺

Morse Code Tutor

Practicing for telecommunication exams in morse code can be made easier with this utility

By Geoff Hackworth

Records and cassette have been created to aid learning morsecode, but the strings of letters soon become familiar after listening to them many times (so you would normally have to unless you were some kind of genius!). The solution is to find someone who can send you random letters in morse code but why bother when this computer program is all you need?

The Program

The program is designed to aid the learning of morse code by sending random letters selected from a specific list which you have selected for the test. In this way you could learn the alphabet in stages. For example, selecting the letters ABCDEF means that the computer will randomly choose from this range when it tests you.

The program also provides the facility for the user to type in a string of text using any of the characters shown in Figure 1. The computer will now send this message instead of random letters. The string can be up to 717 characters in length (including any spaces). This allows a tutor to type in real words or messages for the learner to receive as a change from deciphering random characters.

Getting it in

The program is presented in the form of a Basic loader with each line of data having a checksum to reduce errors. Once you've typed it all in, save the program to disk or cassette. Before I go on, some of you may have noticed that the actual machine code starts at 2049, the beginning of Basic's 50, I'm not crazy, this is so you don't have to remember a 515 number whenever you want to use it. The very first part of the data in the loader program

corresponds to a basic line containing a 515 call.

Before you attempt to run the loader (which would result in a crash as it will attempt to poke the data in on top of itself) remove the 'POKEAD,DT' from line 69 but leave the rest of the line intact. Now you can safely RUN the program and see out any checksum errors without the program actually POKEing the data anywhere. Once you have corrected the errors, put back the 'POKEAD,DT' into line 69 (make sure it's in the original place) and re-run the program.

Now you must move the bottom of Basic up out of the way of the machine code pointer. Do this by typing 'POKE656,0:POKE43,1:POKE44,2:CLRNEW'. Now LOAD in the Basic loader again and RUN it. The machine code will now be poked into memory. Once this has been done you now have to save the MORSE CODE program as a standalone program. To do this, type 'POKE43,1:POKE44,0:POKE45,115:POKE46,23:SAVE filename'. Add an 'S' if you are using disk. The MORSE CODE program will be saved. The program can now be RUN.

Using the program

Once operational, Morse Code Tutor presents you with a main menu screen displaying various parameters which can be changed and the three main options. Before I describe the options I will explain the parameters.

The parameters which can be changed are the current words-per-minute speed (WPM), the delay between letters and words (given in terms of 'dot' lengths) and the number of groups to be sent. The latter is only used in option 3 next page. The delay between words is always four more dots than the delay between letters,

thus changing the delay between letters will automatically cause a change in the delay between words. To change the parameters use the keys F2 for the number of groups,

Option 1 - Select Characters for the text. This option enables the user to specify which characters are to be enabled or disabled when the computer randomly selects characters in Option 3.

All possible characters are shown on the screen and all those characters in reverse video are currently enabled. Thus pressing the key corresponding to a presently enabled character will set the character to normal video on screen to show that it is now disabled. Pressing 'T' while pressing 'F' will characters, whilst pressing 'F' will disable them all. As a further help to selecting characters they are segregated on screen into three groups, these being letters, numbers and punctuation. Pressing 'CTRL+L' will toggle all the letters, while 'CTRL+N' and 'CTRL+P' will toggle all of the numbers and all of the punctuation respectively. Once you have made your selection press 'F' to return to the main menu.

Option 2 - Input string to be sent. This option lets you type in a string of text which uses any of the characters in Figure 1. This can then be sent back at the current WPM speed and using the current delays between letters and words (as set on the main menu screen). The pair of square brackets '[' and ']' indicate the available space for your text (717 characters).

Once you have finished typing in your text, pressing RETURN will send the string you have just typed in. You can press 'F' to abort this stage and you are then asked for another string of text, your previous message is not

scanned. You may press 'F' again to return to the main menu screen.

Option 3 - Begin Text. This is the most powerful option; it will send you groups of five random characters selected from those enabled in Option 1) at the current WPM speed, with the current delay between letters and words (as set on the main menu screen).

The number of groups setting on the main menu screen determines how many groups of five characters will be

sent. Pressing 'F' on the main screen will enter this option. You are asked to wait while the computer selects the characters which it is going to send to you (the border flashes during this process). This usually only takes a few seconds, but may be longer if you have only enabled a few characters in Option 1. If no characters are enabled then you are returned immediately to the main menu screen.

When the computer has finished sending the message it displays the

characters it has sent, in groups of five, waiting for a keypress between each display. After all the groups have been displayed you are asked to press any key to return to the main menu screen. If, during the sending of the groups you press 'F' then sending will stop and you are shown only the characters which were sent before 'F' was pressed.

Please note that whenever the computer is asked to send any message (in either option 2 or 3) it calculates the timing according to the WPM speed, delays between letters and words and it also takes account of the average length, in time, of the characters which are currently enabled (Option 2 enables all the characters because they may all be used). Thus when some combinations of characters are enabled and sent at a certain WPM and delay setting, the actual length of the dots and dashes may sound different when compared to those when other combinations of characters are selected. As an example of this, consider only the letters EINT as being enabled. In terms of "length" in time they are short, so the individual dots and dashes will sound longer than if only the punctuation characters were enabled (which are much "longer" than the letters EINT). So the program takes account of this fact when calculating how long to make each dot and dash. A similar effect is noticed when changing the delays between letters and words. A larger delay causes the dots and dashes to be shorter so that the WPM setting is still accurate, ensuring that the same number of words is sent in the fixed amount of time. This may take some getting used to, but if the sending is too slow or too fast for you, just abort it and change the WPM speed to take account of the previous changes you made.

Note that in true Morse the delay between letters is three dots, but I have allowed this to be extended so that the learner is given more time to think about what they have just heard before another character is sent. You should eventually be able to receive with the delay at three dots.

Also note that in Morse code the delay between dots and dashes of a letter (i.e. the delay between the dot and the dash of the letter 'W') is equivalent in time to the length of a dot. A dash is always three times as long as a dot.

Figure 1

Char	Morse	Char	Morse
A	· · · -	V	· - · · ·
B	· · · · -	W	· - - · ·
C	· · · · - ·	X	· · · - · ·
D	· · · -	Y	· - · - · ·
E	·	Z	· - - - · ·
F	· · · - ·	[]	[]
G	· · · - ·	[]	[]
H	· · · ·	[]	[]
I	· ·	[]	[]
J	· - · · ·	[]	[]
K	· - · ·	[]	[]
L	· - · · ·	[]	[]
M	· - -	[]	[]
N	· - ·	[]	[]
O	· - - -	[]	[]
P	· - · - ·	[]	[]
Q	· - · - · -	[]	[]
R	· - · ·	[]	[]
S	· · · ·	[]	[]
T	· - -	[]	[]
U	· · · -	[]	[]
V	· · · - ·	[]	[]
W	· - - ·	[]	[]
X	· · · - ·	[]	[]

Compilations

If value for money is the order of the day, cast your eye over our collection of compilation games and decide how to spend your Christmas cash

By Tony Hetherington

As the nights get longer and the days get colder the software houses turn to compilations that pack a punch to warm the cockles of your computer. The sheep shivers are being with compilations that offer not only two games for the price of one but also four, six, eight, ten and twelve!

Last month's game of the month went to UK Gold's Solid Gold Compilation that featured Winter Games, Ace of Aces, Infiltrator, Leader Board and Gunster; all for £9.99! Now this has been joined by compilations from the pack of the software houses that range from double packs to giant packs. We look at the top contenders for your Christmas cash.

Software Projects has compiled two double decks featuring both conversion of the side-disk console machine Dragon's Lair and the two games that are now part of software history, Magic Mirror and the sequel Jet Set Willy named the Platform game craze in the UK and now you can get both of them for just £2.99!

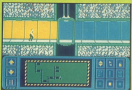
Dragon's Lair was the first video disk arcade machine in which Dirk the Daring battled through whirl pools, rode flying legless horses and finally defeated Singe the Dragon. Now you can tread in Dirk's footsteps in Dragon's Lair and Escape from Singe's Castle which together offer a comprehensive conversion of this amazing classic.

Sports fans will find great value for money in Ocean's Game Set and Match which contains ten games and over 20 different events. First on the plate is Imagine's World Series Baseball, which is quickly followed by a set of Match Point and the excellent Jonah Harrington's Squads, a frame of Vision Soccer, a match of Super Soccer, a season of Gamemaster's Two on Two Basketball, a game of Kenner's Ping Pong and eight rounds of Activision's Barry McDragon's Bowling. If you've got any stamina left then let us see you tackle in Daisy Thompson's Superstars that will have you shooting, cycling, diving, skiing, rowing, penalty kicking, ski jumping and (gag of warring with the great man). Or you can try the swimming, shoot shooting, weight lifting and archery of Hyper Sports. Guaranteed to break your pocket but not the bank.



Two on Two

Two on Two Basketball is also available on the Gamestar (Activision) Sportpack that also contains Championship Baseball and GFL Championship Football (American).



Impossible Mission

Hypersports was one of the last "events" games from Decas (Konami) who started it all with Daley Thompson's Decathlon. Since then American giants, Epyx, has taken over with its series of Winter Games, World Games and now California Games. Its first, Summer Games, just missed out on the Decathlon crown but is now back on the Epyx Epic compilation from US Gold which also includes the high speed, split screen, racing action of Pinup II, the superb sailing, sailing, Gemish Impossible Mission and the Moon Walks and Head Spins of Breakdancer.

If Epyx has dominated the sports scene then there can be no doubt that Elite is the King of the coin-op conversions. Now you can buy the best of Elite for only £34.99. In a double tape pack you get one of my all time favourites, Paperboy along with Frank Bruno's Boxing, Commando, Bombjack, Arsenal, Ghosts and Goblins, Space Harrier and Bombjack II!



Paper Boy

If you think eight games for the price of one is good value then what about Beam Jolly's Ice Computer Hit 4 which now includes two free games bringing the total to 12 games for £99! Remember Hewson's futuristic racing shoot 'em up called Alleykat, Martech's juke game Uki Mite and Electric Dream's Spindizzy? Well, they're joined by Bride of Frankenstein (Breaker), Classic Smoother and Maggie Madson (Arco), Sacred Armour of Antiriad (Palace), Destroyers (Arvidsson), Skatirook and Starquake (Bubblebus), Hewson style Mirror Madness in Irish Alpha and Dandy (Electric Dream) which are all packed on to a single tape.



Ice Hit



Elite of Frankenstein

Decas offer action and adventure all the way in their Line Action (£3.95) compilation in which you can carry out Arco Moves, blast anything in sight as Rambo or as George Hanoi, take to the skies in the dogfight action of Breakout of a POW camp in the Great Escape. Choose your weapons, my pick would be the tense prison of war adventure of The Great Escape.



Power Plays

The Power House consider their compilation of eight budget games a "software album" and so the games on Power Plays are still available individually or you get the lot and save yourself some cash. For your money you'll get one of the most addictive platform games ever written in



Bomb of Britain

Hercules and its magical God's and Heroes, the blood 'n' gore Terminator, A Hermitic Space Warrior, Sermon Ranger and Gun Runner and the puzzling maze exploration game Squaj!

Wargamers won't feel left out of the compilation either as PWS have released Conflict 1 containing three strategic simulations. Now you can recreate the Battle of Britain, the conquest of Falklands 82 and fight the controversial Theatre Europe all for the cost of a single cassette.

Ten great games for the price of one is the offer from Gamma Graphics. If you take it up, and you should, you'll be able to delve into the Gauntlet clone Avenger, explore the wondrous platform game shoot 'em up adventure that's Future Knight, knock the bricks out of Kickout, bounce to glory in Bonzo and shoot to the top in Football of the West. If you've got any life left in your joystick after that for you can run the race of your life in the exceptional Thrillblaster, blast the 3D masses of Highway Encounter, join Monty on the Run, sub the West Bank or be as naughty as you can as Jack the Nipper. Kickout, Bonzard, Futan Knight and Thrillblaster have got to be worth £9.99 on their own and with games like Avenger and Monty on the Run as a bonus it just has to be a winner.

US Guild has another compilation of past hits but you'll have to search out the nearest WH Smiths to find it as Play it Again is only available there. For just £9.99 you'll receive a pack that contains the murder mystery Killed Until Dead, 10th Frame (Ten Pin Bowling Old style), English Software's Leviathan, Infiltrator and the hit and hope Access golf

smash Leader Board as well as the four extra courses included in Leader Board Tournament.

Finally, you can pick up a compilation of ten games and help the fight against cruelty to children. As you play games such as Bounty Bob Strikes Back (US Gold), Skyfox (Electronic Arts), Monty on the Run (Gamma) and Kicktriggle (English) the proceeds of the sales will be helping the NSPCC and RSPCC to stamp out cruelty to kids. It couldn't be easier, in fact, it's kidplay.



Skyfox

YORK ELECTRONIC RESEARCH

Commodore 64/Plus 4 Products

8502 ASSEMBLER 64/Plus 4 tape/disk £12.99

A sophisticated two-pass symbolic assembler and test editor which supports tape and disk filing. The assembler, the editor, and your source and object code may all reside in memory simultaneously, facilitating rapid and interactive code development. Recently extended tutorial with many examples.

286 EMULATOR/CROSS-ASSEMBLER 64 only disk £12.99

A unique integrated 286 development package. The emulator simulates 286 source code into optimized 8502 which runs on the 64 at approximately one sixth the speed of a 286. 286. It supports all features of the 286 286 operations, such as 8000 routines, and interrupts. The cross assembler generates hex or binary 286 object files. The disk also contains a powerful editor and several example programs.

BI-DIRECTIONAL RS232C INTERFACE WITH COMMUNICATIONS SOFTWARE 64-4 tape/disk £29.99

The 64 SERIAL supports RS232C via the serial port. The interface provides the necessary voltage conversion for direct connection to RS232C printers, modems and other devices. It is compatible with Easyprint and Superprint. The unit is supplied with 1 metre of cable (add 70p per extra metre) (terminated for 25, easy sale for 100p) (Connector The software includes a terminal emulator which supports split screen use and auto-dial. file transfer utilities, a menu driven port initialization program, and a transparent printer driver which supports the SERIAL, to restrict device 4 printer output to the RS232C port.

*Please specify.

Prices are fully inclusive. Overseas orders add £3.00.

Allow up to 1 week for delivery.

Manuals available separately £1.00

YORK ELECTRONIC RESEARCH

The Fishergate Centre, Dept 15, 4 Fishergate, Fols 101 668
Telephone: (0684) 505112

POOLSWINNER II

THE ULTIMATE POOL PREDICTOR PROGRAM

- **MASTERS GAME** Predicts the outcome of your matches and offers advice on the correct strategy.
- **ANALYSIS** - 1000 matches per season.
- **FEEDBACK** - 1000 SCORES/LABELS for STRIKE, HEADS and TAILS.
- **PROGRESS** - 1000 Progress for Performance analysis.
- **RECORDS** - 1000 Progress for Performance analysis.
- **ADAPTIVE** - Predictions are given on every ball. The chance of a ball being pocketed is calculated for you. The program predicts the outcome of the shot.
- **PROGRAMS** - 1000 Progress for Performance analysis.
- **ADAPTIVE** - Predictions are given on every ball. The chance of a ball being pocketed is calculated for you. The program predicts the outcome of the shot.
- **ADAPTIVE** - Predictions are given on every ball. The chance of a ball being pocketed is calculated for you. The program predicts the outcome of the shot.
- **ADAPTIVE** - Predictions are given on every ball. The chance of a ball being pocketed is calculated for you. The program predicts the outcome of the shot.

FIXGEN 100 - 1000 Progress for Performance analysis. The program predicts the outcome of the shot.

COURSEWINNER v3 - 1000 Progress for Performance analysis. The program predicts the outcome of the shot.

PRICE £12.99 (all included) includes 1000 Progress for Performance analysis.

1000 Progress for Performance analysis. The program predicts the outcome of the shot.

1000 Progress for Performance analysis. The program predicts the outcome of the shot.

Software for Sale

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

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

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

The Your Commodore Software Service makes available all of the programs from each issue on both cassette and disk at a price of \$6.98 for disk and \$4.98 for cassette. None of the documentation for the programs is supplied with the software since it is all available in the relevant magazine. Should you not have the magazine then back issues are available from the following address:

INFONET LTD, 5 River Park Estate, Berkhamsted, Herts HP8 1HL.
TEL: (0442) 76601

Please contact this address for prices and availability.

The Disk

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

What programs are available?

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



This symbol means that the program is available on cassette.



These programs are available on disk.

Please Note

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

SEPTEMBER 1987

DISKIT 7 — Copy your disk programmes to cassette with ease. (C64 — disk only.)

FILES/AN ANIMATED GRAPHICS — High Res Animation for Plus/4 owners. (Disk only.)

SMOOTH VERTICAL SCROLLER — Professional looking for video owners. (C64)

ORDER CODE

DISK 50SEP87 £6.98

TAPE 50SEP87 £4.98

SPEEDY ASSEMBLER

Your Commodore's own assembler as used in our Byteing into the 8510 series, complete with manual.

VSPASD £9.95.

VSPASC £9.95.

OCTOBER 1987

Shadow Boxing — Use the memory under the C64's HOME for storage.

Adventure Kit — The first module of our DIY Adventure system. (C64)

Sprite Grabber — Grab Sprites from other programs and save them for later use. (C64)

Hide It — Program protection for C64 owners.

ORDER CODE

DISK 50OCT87 £6.98

TAPE 50OCT87 £4.98

NOVEMBER 1987

ADVENTURE KIT II — The second part of our C64 adventure writing kit.

MEMORIAL II — A pull-down menu system giving easy file handling. (C166)

FUNCTION KEY TEMPLATE — Use the Commodore plotter to produce templates on your C64.

PLUS/4 AND C64 DISK MENU — Access your disk files with ease (disk only).

128 PREFERENCES — Predefine your computer's default characteristics.

NUMBER TUMBLE — A frustrating game for the C64.

ORDER CODE

DISK YCNOV87 £4.99

TAPE YCNOV87 £4.99

DECEMBER 1987

DISKIT 8 — A memory clear routine for use with our Turbo Crasher from March 1987 (Disk only).

DISK MANAGER — Pop-Up disk commands at your fingertips (C64, disk only).

RELOCATOR — Alter the load address of your programs (C64).

SPEED SCROLL — Powerful machine code scroll routine (C64).

TYPEO — A Plus/4 text editor (Disk only).

EASY COUNT — A word count facility for Easy Script users.

BUDGET CALC — Keep track of your finances (C64, disk only).

SPIRIT LIBRARY — The first part of our spirit collection (C64).

LESTER 128 — Produce neat C128 listings with this program (C128, disk only).

TRACK/SECTOR EDITOR — A powerful disk editor (C64,

disk only).

DIE COVER — Produce your own detailed disk covers (C64 plus disk and printer).

1541 FAST LOADER — Improve your loading time (C64, disk only).

MENU MAKER — A menu generator for C64 owners (Disk only).

ORDER CODE

DISK YCDEC87 £6.99

TAPE YCDEC87 £4.99

JANUARY 1988

88 CHARACTER PRINTOUT — Give your C64 80 columns.

QUESTIONNAIRE 1 — An excellent quiz generator for the C64.

ACERBYD'S SAGA — A mathematical educational adventure (C64).

ENLARGING THE 64 — Create large characters on the C64.

ARRAY DISPLAY SUBROUTINES — Improve your C64's INPUT routine.

C64 TAPE SYSTEM — Provide menu driven access to your Commodore cassettes.

ORDER CODE

DISK YCJAN88 £4.99

TAPE YCJAN88 £4.99

Cassettes or disks are available from March 1988. Please ring the editorial office (01-477 0670) for details of these.

ORDER FORM — PLEASE COMPLETE IN BLOCK CAPITALS

NAME	QTY	TAPE/DISK	ORDER CODE	PRICE
FEBRUARY '87		TAPE (£4.99)	YC FEB 87	
FEBRUARY '87		DISK (£6.99)	YD FEB 87	
OVERSEAS POST ET				
			TOTAL	

NAME.....

ADDRESS.....

POSTCODE.....

I enclose a cheque/postal order for £..... made payable to ARGUS SPECIALIST PUBLICATIONS LTD.

All orders should be sent to: YOUR COMMODORE, READERS SERVICES, ARGUS SPECIALIST PUBLICATIONS, 9 HALL ROAD, HEMEL HEMPSTEAD, HERTS HP2 7SH.

Please allow 28 days for delivery.

2 issues FREE

When you take out a subscription to any of these magazines

	EUROPE	MIDDLE EAST	FAR EAST	REST OF THE WORLD
ABB Computing	£27.30	£27.60	£31.10	£28.50
Acromodeller	£27.60	£27.20	£29.00	£27.50
Citizens Band	£20.10	£20.30	£21.80	£20.50
Clocks	£52.40	£52.60	£54.70	£53.00
Commodore Disk User	£18.00	£18.20	£19.50	£18.40
Disk User	£21.60	£21.70	£23.20	£22.00
Electronics Digest	£12.90	£13.00	£13.70	£13.10
Electronics Today International	£21.00	£21.20	£22.80	£21.50
Ham Radio Today	£20.10	£20.50	£22.00	£20.60
Military Modelling	£22.40	£22.60	£25.20	£23.10
Model Boats	£20.00	£20.10	£21.80	£20.40
Model Engineer	£25.40	£25.70	£26.00	£26.50
Photography	£22.00	£22.50	£25.00	£22.80
Photoplay	£16.70	£16.90	£18.70	£17.20
Popular Crafts	£21.40	£21.60	£23.00	£22.00
Radio Control Model Cars	£21.10	£21.50	£23.10	£21.60
Radio Control Boat Modeller	£10.00	£10.20	£11.10	£10.50
RCHBE	£20.40	£20.60	£22.90	£21.00
Radio Control Scale Aircraft Quarterly	£11.10	£11.20	£12.00	£11.50
Radio Modeller	£20.00	£20.20	£22.40	£20.60
Sea Classic International	£10.70	£10.80	£12.00	£11.00
Scale Models International	£19.60	£19.80	£21.50	£20.10
Video Today	£20.20	£20.40	£22.50	£20.70
Which Video?	£19.40	£19.50	£21.20	£19.80
Woodworker	£22.80	£23.00	£25.70	£23.50
Your Commodore	£22.00	£22.50	£25.20	£22.80
Model Railways	£19.10	£19.50	£21.50	£19.70
Practical Wargamer	£7.10	£7.20	£8.00	£7.40

The Above Offer Applies to Overseas Subscriptions Only

This offer is also open to existing subscribers who may wish to extend their current subscriptions.

Please commence my subscription(s) to
I enclose my cheque/money order for £
or debit £

sent free
Name
Address

to

with the

made payable to Argus Specialist Publications Ltd.
from my Access/Bank/Post No.

Signature

issue



Send this form with your remittance to
INFUNET LTD, (S.O. 88) 1 River Park Estate,
Stockton-on-Tees, Herts. HP1 1HT.



Poker Face

*If your latest game always leaves you at death's door,
this could pull you through!*

By Norman Doyle

Is it a book? Is it a magazine? No, it's *What Pokes?*—a collection of hints, tips, cheats and jotted reviews from H & D Services.

Once upon a time, the computer gaming fraternity used to be an unofficial gentlemen's club. Games were there to play and cheats were frowned upon. This has all changed since people realised that some games are impossible without a little assistance and now the sordid pastime of *PIEKs* and *POKEs* has become a major magazine money-spinner.

What Pokes? strips away the trimmings of the traditional magazine and concentrates heavily on maps, hints, solutions and, of course, the pokes themselves.

Despite classifying itself as a magazine, the editorial team are out to bust the image of the A4 format by printing as an A5 booklet. This has the advantage of producing a stiff-backed handbook which is easily stored on your bookshelf.

The series of books are broken down into subject areas. C16 owners have a separate issue from C64

owners, and adventures are treated on their own as a specialist genre.

In the 70 pages of the first issue of the C64 Volume 1, there are 40 pokes, seven maps, two hints and two solutions. The rest of the magazine consists of reviews and features written in a very starchy fashion.

After reading the K&R K&R K&R attitude towards traditional magazines in the introductory pages, I expected a little more acidity. The editorial implies that the established members are in the pockets of the advertisers. Although this may be true



for the colour blue although I know other people would disagree.

The reviews are 'bottom lines', they say nothing much about the game and then you are given the opinions of a panel of reviewers. Taking the overall impression, it just goes to prove that one man's meat is another man's poison. The review of *Knights of the Killer Ring*, for example has comments ranging from 'totally average' to 'an excellent shoot-em-up'.

Still, this is not the purpose of *What Pokes?* Its main aim is cheats and lots of them. If this is your main aim in life, the magazine delivers the goods but I feel that you're still paying for a fair degree of wallpaper compared to the traditional, colourful, informative monthly magazine. Despite its thickness, *What Pokes?* has not transcended its beginnings as a broadsheet, only the price has changed.

Timeline:

Name: *What Pokes?* Publisher: H & D Services, 118B Ashton Old Road, Higher Green, Manchester M11 1JG. Price: £1.00.

of one or two less reputable rags, I know that this is a popular work. Some companies do get soft treatment at the hands of the reviewers but this is a result of a generally good track record. It's very similar to the way that a US fan would never admit that the band has produced a few trashy records. At least one of the reviews in *What Pokes?* shows a sympathetic attitude towards Hewson's *Zynaps* so they can't claim to be free of this reviewer's disease.

A review is personal opinion and I would wax lyrical about my preference

Get The Point

Using a pointer to select menu options turns a window task into a pleasure.

By Martin Reddy

The Amiga uses an arrow to select options from the screen and the pull-down menus. You don't have to buy GEOS to add this to your C64 when just 514 bytes of program will do the job for you.

This program runs on an interrupt and allows as much flexibility as possible. Under program control or in direct mode, you can either find the character under the arrow or retrieve the XY co-ordinates of the arrow.

PEEKing location \$20 will reveal the screen code of the character under the arrow cursor. If this is not required, then PEEK(\$22) will reveal the X co-ordinate of the cursor position while \$23 stores the Y co-ordinate.

As this routine can be put to many uses, the cursor colour may need to be changed according to the background. Any colour can be selected simply by poking its numerical value into location \$21.

The speed of the arrow can also be altered through locations 40107 (\$9073). This contains the default value of 8 at first but any value from 1 to 255 can be poked in. The rule to follow is that the lower the value, the faster the speed at which the cursor moves.

The program is stored at the top of the Basic memory at locations 40000 to

40515 (\$9C40-\$9E5F). This means that it will work in conjunction with most machine code and Basic programs. In the latter case you should make sure that you leave the top of Basic to prevent variable storage from overwriting the cursor control program. Try using it with the window generator (Four Commodore August 1987) to see how any program can be given that professional touch.

If an arrow isn't suited to your application or if you want to use Multi-colour mode, the shape of the cursor can be altered. The character definition is stored in the first 16 bytes of the code and takes the form of an eight pixel block, or two characters on top of one another. If you do change the character, remember that the checksum at the end of line 10 will have to be altered accordingly.

The interrupt is set in operation by \$75:40000.



Listings

*Get it right first time with our deluxe program system
for the C64.*

You may have noticed that our listings are free of those horrible little black blinks which send you searching around the keyboard for a suitable graphic symbol. You may also have noticed the fancy numbers by the side of each line of the listing. First no more, it's all part of our easy entry aid.

Instead of those messy graphics and rows of countless spaces in PRINT statements and strings we use a special coding system. The code, or mnemonic, is always contained in square brackets and you'll soon learn to decipher their meanings.

For example, [SA] would mean type in a Shifted A, or an ace-of-spades in layman's terms, and [SAH] would mean a row of ten of these symbols.

[S=2] means hold down [the shift] key and press the plus key twice. It doesn't take a great leap of logic to realize that [C+2] means exactly the same thing except that the Command key (bottom left of the keyboard) is held down instead of the shift key.

If more than two spaces appear in a statement then this will be printed as [SPC4] or, exceptionally, [SSPC4]. Translated into English this means press the spacebar four times or in the latter case hold the shift key down while you do it.

A string of special characters could appear as: CTRL N, DOWN2LEFTS,BLUE, FACH

This would be achieved by holding

down the CTRL key as you press N, press the cursor key down twice, the cursor left key five times, press the key marked BLUE while holding down the CTRL key, press the F3 key and, finally hold the Command key down while pressing the number two key (C2 would of course make the computer print in brown).

Always remember that you should only have a row of graphics characters on your screen with no square brackets and no commas, unless something like this appears: [SS][C*]

In this case the two characters should have a comma between them.

On rare occasions [REV T] will appear in a listing. This is a delete symbol and is created by entering the line up to this mnemonic. Then type a closing quotation mark (SHIFT & 3) and delete it. This gets the computer out of quotes mode. Hold down CTRL and press the number nine key (RVSON9), type the relevant number of reversed T's and then hold down CTRL and press zero (RVSOFF0). Next type another quotation mark and delete it again. Now finish the line and press RETURN.

A list of these special cases is given in the table but remember that only one of these mnemonics will appear outside of a PRINT string; the symbol for pi. This may appear when its value is needed in a calculation so this may look something like:

```
..CC=2*PI*P;
Again the square brackets and just type in a shifted upward pointing arrow (i.e. the pi symbol).
```

PROGRAM: BYTES CHECKER

```

10000 BYTES CHECKER - 8000 BYTES
100 B:100 10000 10000000
00 FOR L=0 TO B:GOTO 20000000 TO
20
300 B:100 0 10000000000000000000
10 TO L:GOTO L:GOTO L:GOTO L:GOTO
100 C=2*PI*P
40 B:100 0 10000 10000000000000000000
50 B:100 1 10000 10000000000000000000
60 B:100 1 10000 10000000000000000000
70 B:100 1 100 0 10000 10000000000000000000
80 B:100 0 1000 10000000000000000000
90 B:100 1000 7 100 1000 1000 1000
0 10000000000000000000000000000000
100 B:100 1000 100 0 10000000000000000000000000000000
10000000000000000000000000000000
110 B:100 0 10000000000000000000000000000000
120 B:100 0 10000000000000000000000000000000
130 B:100 0 10000000000000000000000000000000
140 B:100 0 10000000000000000000000000000000
150 B:100 0 10000000000000000000000000000000
160 B:100 0000 1 100 1000 1000 1000
170 B:100 100 100 100 100 100 100 100
180 B:100 0 10000000000000000000000000000000
190 B:100 0000 1 100 1000 1000 1000
200 B:100 0000 100 0 100 1000 1000 1000
210 B:100 0000 100 0 100 1000 1000 1000
220 B:100 0000 100 0 100 1000 1000 1000
230 B:100 0000 100 0 100 1000 1000 1000
240 B:100 0000 100 0 100 1000 1000 1000
250 B:100 0000 100 0 100 1000 1000 1000
260 B:100 0000 100 0 100 1000 1000 1000
270 B:100 0000 100 0 100 1000 1000 1000
280 B:100 0000 100 0 100 1000 1000 1000
290 B:100 0000 100 0 100 1000 1000 1000
300 B:100 0000 100 0 100 1000 1000 1000
310 B:100 0000 100 0 100 1000 1000 1000
320 B:100 0000 100 0 100 1000 1000 1000
330 B:100 0000 100 0 100 1000 1000 1000
340 B:100 0000 100 0 100 1000 1000 1000
350 B:100 0000 100 0 100 1000 1000 1000
360 B:100 0000 100 0 100 1000 1000 1000
370 B:100 0000 100 0 100 1000 1000 1000
380 B:100 0000 100 0 100 1000 1000 1000
390 B:100 0000 100 0 100 1000 1000 1000
400 B:100 0000 100 0 100 1000 1000 1000
410 B:100 0000 100 0 100 1000 1000 1000
420 B:100 0000 100 0 100 1000 1000 1000
430 B:100 0000 100 0 100 1000 1000 1000
440 B:100 0000 100 0 100 1000 1000 1000
450 B:100 0000 100 0 100 1000 1000 1000
460 B:100 0000 100 0 100 1000 1000 1000
470 B:100 0000 100 0 100 1000 1000 1000
480 B:100 0000 100 0 100 1000 1000 1000
490 B:100 0000 100 0 100 1000 1000 1000
500 B:100 0000 100 0 100 1000 1000 1000
510 B:100 0000 100 0 100 1000 1000 1000
520 B:100 0000 100 0 100 1000 1000 1000
530 B:100 0000 100 0 100 1000 1000 1000
540 B:100 0000 100 0 100 1000 1000 1000
550 B:100 0000 100 0 100 1000 1000 1000
560 B:100 0000 100 0 100 1000 1000 1000
570 B:100 0000 100 0 100 1000 1000 1000
580 B:100 0000 100 0 100 1000 1000 1000
590 B:100 0000 100 0 100 1000 1000 1000
600 B:100 0000 100 0 100 1000 1000 1000
610 B:100 0000 100 0 100 1000 1000 1000
620 B:100 0000 100 0 100 1000 1000 1000
630 B:100 0000 100 0 100 1000 1000 1000
640 B:100 0000 100 0 100 1000 1000 1000
650 B:100 0000 100 0 100 1000 1000 1000
660 B:100 0000 100 0 100 1000 1000 1000
670 B:100 0000 100 0 100 1000 1000 1000
680 B:100 0000 100 0 100 1000 1000 1000
690 B:100 0000 100 0 100 1000 1000 1000
700 B:100 0000 100 0 100 1000 1000 1000
710 B:100 0000 100 0 100 1000 1000 1000
720 B:100 0000 100 0 100 1000 1000 1000
730 B:100 0000 100 0 100 1000 1000 1000
740 B:100 0000 100 0 100 1000 1000 1000
750 B:100 0000 100 0 100 1000 1000 1000
760 B:100 0000 100 0 100 1000 1000 1000
770 B:100 0000 100 0 100 1000 1000 1000
780 B:100 0000 100 0 100 1000 1000 1000
790 B:100 0000 100 0 100 1000 1000 1000
800 B:100 0000 100 0 100 1000 1000 1000
810 B:100 0000 100 0 100 1000 1000 1000
820 B:100 0000 100 0 100 1000 1000 1000
830 B:100 0000 100 0 100 1000 1000 1000
840 B:100 0000 100 0 100 1000 1000 1000
850 B:100 0000 100 0 100 1000 1000 1000
860 B:100 0000 100 0 100 1000 1000 1000
870 B:100 0000 100 0 100 1000 1000 1000
880 B:100 0000 100 0 100 1000 1000 1000
890 B:100 0000 100 0 100 1000 1000 1000
900 B:100 0000 100 0 100 1000 1000 1000
910 B:100 0000 100 0 100 1000 1000 1000
920 B:100 0000 100 0 100 1000 1000 1000
930 B:100 0000 100 0 100 1000 1000 1000
940 B:100 0000 100 0 100 1000 1000 1000
950 B:100 0000 100 0 100 1000 1000 1000
960 B:100 0000 100 0 100 1000 1000 1000
970 B:100 0000 100 0 100 1000 1000 1000
980 B:100 0000 100 0 100 1000 1000 1000
990 B:100 0000 100 0 100 1000 1000 1000
1000 B:100 0000 100 0 100 1000 1000 1000

```

by Eric Dayle

Checksum Program

The hexadecimal numbers appearing in a column to the left of the listing should not be typed in with the program. These are merely checksum values and are there to help you get each line right. Don't worry if you don't understand the hexadecimal system, as long as you can compare two characters on the screen with the corresponding two characters in the magazine you can use our line checking program.

Type in the Checksum Program, make sure that you've not made any mistakes and save it to tape or disk

immediately because it will be used with most of the present and future listings appearing in *Your Commodore*.

At the start of each programming session, load *Checksum* and run it. The screen will turn brown with yellow characters and each time you type in a line and press the RETURN key a number will appear on the screen in white. This should be the same as the corresponding value in the magazine.




If the two values don't relate to one another, you have not copied the line exactly as printed so go back and check each character carefully. When you find the error simply correct it and

















press RETURN again.

If you want to turn off the checker simply type SYS49152 and the screen will return to the familiar blue colour. You can then do whatever it was you wanted to do and if this doesn't use the area where *Checksum* lives you can go back to it with the same SYS command.

Lower Case

Many of the listings are presented in lower case. To turn your computer to lower case mode press the Commodore key and the SHIFT key at the same time. 71

Mnemonic	Symbol	Keypress
[RIGHT]		CRSR left/right
[LEFT]		SHIFT & CRSR left/right
[DOWN]		CRSR up/down
[UP]		SHIFT & CRSR up/down
[F1]		F1 key
[F2]		SHIFT & F1 key
[F3]		F3 key
[F4]		SHIFT & F3 key
[F5]		F5 key
[F6]		SHIFT & F5 key
[F7]		F7 key
[F8]		SHIFT & F7 key
[HOME]		CLR/HOME
[CLR]		SHIFT & CLR/HOME
[RVSON]		CTRL & 9
[RVSOFT]		CTRL & 8

Mnemonic	Symbol	Keypress
[BLACK]		CTRL & 1
[WHITE]		CTRL & 2
[RED]		CTRL & 3
[CYAN]		CTRL & 4
[PURPLE]		CTRL & 5
[GREEN]		CTRL & 6
[BLUE]		CTRL & 7
[YELLOW]		CTRL & 8
[POUND]		£
[LARBOW]		←
[UPARROW]		↑
[P1]		SHIFT & ↑
[INST]		SHIFT & INST/DEL
[REV T]		rev test
[Clatter]		CBM + letter
[Skitter]		SHIFT + letter

YOUR

COMMODORE

Listings

Get The Point



PROGRAM - GET THE POINT

11	30	GET *****	48	100	DATA	80,000,10,000,00,1	100	0,170,000,0,007,100,0,00
12	50	GET *	49	05	0,001,110,00,17,170,10,00	0,0,1077	01	0,1000
13	50	GET * GET THE POINT	50	100	DATA100,100,10,000,100,0	100,110,10,001,10,000,00,17	02	000 DATA10,000,0,170,00,0,0
14	50	GET *	51	100	DATA100,100,10,000,100,0	100,110,10,001,10,000,00,17	03	01,10,00,0,0,000,100,0,000,100
15	50	GET *	52	000	DATA100,100,100,100,10,000,10	100,0,10,100,00,100,10,000,00,	04	0,1000
16	50	GET *	53	010	DATA100,1,00,100,0,70,100	100,0,1000	05	000 DATA10,100,0,000,100,0,00
17	50	GET *	54	000	DATA10,70,100,100,170,0,0	000,001,000,000,0,70,170,100,	06	000 DATA10,100,0,000,0,000,0,000
18	50	GET *	55	000	DATA1000,0,70,100,100,100,000	001,100,0070	07	000 DATA10,100,0,000,100,0,00
19	50	GET *	56	000	DATA1000,0,70,100,100,100,000	100,000,0,70,000,100,000,10	08	000 DATA10,100,0,000,100,0,00
20	50	GET *	57	000	DATA1000,0,000,000,100,000,100,0	00,0,00,170,100,70,000,100,0	09	000 DATA10,100,0,000,100,0,00
21	50	GET *	58	000	DATA10,00,100,100,70,000,	000,001,110,000,0,00,170,100,	10	000 DATA10,100,0,000,100,0,00
22	50	GET *	59	000	DATA100,001,117,000,0,0,00	100,000,00,000,000,00,00,00	11	000 DATA10,100,0,000,100,0,00
23	50	GET *	60	000	DATA10,000,0,000,000,00,00,00	0,000,001,0000	12	000 DATA10,100,0,000,100,0,00
24	50	GET *	61	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	13	000 DATA10,100,0,000,100,0,00
25	50	GET *	62	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	14	000 DATA10,100,0,000,100,0,00
26	50	GET *	63	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	15	000 DATA10,100,0,000,100,0,00
27	50	GET *	64	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	16	000 DATA10,100,0,000,100,0,00
28	50	GET *	65	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	17	000 DATA10,100,0,000,100,0,00
29	50	GET *	66	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	18	000 DATA10,100,0,000,100,0,00
30	50	GET *	67	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	19	000 DATA10,100,0,000,100,0,00
31	50	GET *	68	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	20	000 DATA10,100,0,000,100,0,00
32	50	GET *	69	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	21	000 DATA10,100,0,000,100,0,00
33	50	GET *	70	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	22	000 DATA10,100,0,000,100,0,00
34	50	GET *	71	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	23	000 DATA10,100,0,000,100,0,00
35	50	GET *	72	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	24	000 DATA10,100,0,000,100,0,00
36	50	GET *	73	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	25	000 DATA10,100,0,000,100,0,00
37	50	GET *	74	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	26	000 DATA10,100,0,000,100,0,00
38	50	GET *	75	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	27	000 DATA10,100,0,000,100,0,00
39	50	GET *	76	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	28	000 DATA10,100,0,000,100,0,00
40	50	GET *	77	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	29	000 DATA10,100,0,000,100,0,00
41	50	GET *	78	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	30	000 DATA10,100,0,000,100,0,00
42	50	GET *	79	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	31	000 DATA10,100,0,000,100,0,00
43	50	GET *	80	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	32	000 DATA10,100,0,000,100,0,00
44	50	GET *	81	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	33	000 DATA10,100,0,000,100,0,00
45	50	GET *	82	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	34	000 DATA10,100,0,000,100,0,00
46	50	GET *	83	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	35	000 DATA10,100,0,000,100,0,00
47	50	GET *	84	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	36	000 DATA10,100,0,000,100,0,00
48	50	GET *	85	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	37	000 DATA10,100,0,000,100,0,00
49	50	GET *	86	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	38	000 DATA10,100,0,000,100,0,00
50	50	GET *	87	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	39	000 DATA10,100,0,000,100,0,00
51	50	GET *	88	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	40	000 DATA10,100,0,000,100,0,00
52	50	GET *	89	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	41	000 DATA10,100,0,000,100,0,00
53	50	GET *	90	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	42	000 DATA10,100,0,000,100,0,00
54	50	GET *	91	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	43	000 DATA10,100,0,000,100,0,00
55	50	GET *	92	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	44	000 DATA10,100,0,000,100,0,00
56	50	GET *	93	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	45	000 DATA10,100,0,000,100,0,00
57	50	GET *	94	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	46	000 DATA10,100,0,000,100,0,00
58	50	GET *	95	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	47	000 DATA10,100,0,000,100,0,00
59	50	GET *	96	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	48	000 DATA10,100,0,000,100,0,00
60	50	GET *	97	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	49	000 DATA10,100,0,000,100,0,00
61	50	GET *	98	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	50	000 DATA10,100,0,000,100,0,00
62	50	GET *	99	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	51	000 DATA10,100,0,000,100,0,00
63	50	GET *	100	000	DATA10,000,0,000,000,00,00,00	000,000,000,0,000,100,0,170,10	52	000 DATA10,100,0,000,100,0,00

Through The Sound Window

Getting it all on

- 1) Type in and save the program **WEEK GOOD**
 - IF using cassette change the .02 after the LOAD to .1.
- 2) Type in **WEEK LONDER 1** and **END SOUND GOOD**. IF using cassette then use a different tape than **WEEK GOOD**.
- IF using tape remember to change the .02 to .1.
- 3) Turn OFF and ON your machine.
- 4) Load and run **WEEK LONDER 1**
- 5) Load and run **WEEK LONDER 2** When Finished this will ask you to PRESS A KEY TO PAUSE. When a key is pressed the PROGRAM **WEEKEND.CD** will be saved.
- IF using tape than this should be saved immediately after the program **WEEK GOOD**.

73, 217, 175, 2000
 66 2500 0219 10, 173, 121, 2,000, 2,000
 10, 000, 200, 100, 144, 60, 275, 1
 11, 100, 144, 10, 275
 74 2500 0219 050, 000, 000, 100, 0, 0
 173, 020, 200, 100, 10, 173, 110, 1
 00, 170, 00, 000, 000
 75 2500 0219 173, 010, 140, 140, 00
 070, 110, 140, 170, 10, 000, 000
 10, 170, 170, 000, 000
 76 2500 0219 100, 173, 077, 100, 17
 0, 10, 173, 100, 170, 100, 10, 174,
 101, 100, 0, 0, 1000

PROPERTY, MOORE LOWER 2

77 20 01-0794 15-000, 000-000000
 78 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 79 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 80 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 81 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 82 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 83 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 84 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 85 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 86 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 87 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 88 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 89 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 90 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 91 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 92 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 93 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 94 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 95 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 96 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 97 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 98 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 99 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000
 100 20 01-100 1-00 20 01-100-000 0-0
 00-1-0000 0-0000000000

79 2500 0219 2, 000, 1, 74, 100, 0, 71
 0, 100, 000, 173, 1, 000, 00, 020, 0
 0, 000, 1000
 80 2500 0219 00, 70, 70, 70, 140, 110
 1, 000, 100, 0, 100, 100, 000, 173, 1,
 0, 000, 70, 1700
 81 2500 0219 00, 100, 000, 173, 0, 100
 0, 000, 020, 170, 7, 70, 70, 100,
 170, 100, 170
 82 2500 0219 100, 30, 170, 110, 100, 70
 70, 000, 170, 100, 110, 100, 70, 11
 0, 100, 70, 100, 000
 83 2500 0219 170, 110, 100, 000, 000
 070, 170, 10, 173, 110, 100, 000, 0
 0, 100, 170, 100
 84 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 85 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 86 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 87 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 88 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 89 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 90 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 91 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 92 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 93 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 94 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 95 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 96 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 97 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 98 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 99 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100
 100 2500 0219 000, 000, 000, 000, 000, 0
 0, 100, 170, 100

2, 000, 170, 1700
 91 2500 0219 170, 100, 100, 000, 0, 0
 20, 100, 140, 070, 100, 100, 070, 1
 00, 100, 170, 100, 000
 92 2500 0219 100, 201, 100, 100, 170
 1, 100, 200, 101, 101, 000, 00, 100
 1, 100, 0, 100, 000
 93 2500 0219 170, 100, 7, 100, 10, 100
 0, 100, 000, 000, 000, 100, 0, 100
 1, 100, 000
 94 2500 0219 100, 100, 100, 0, 100, 1
 00, 0, 100, 100, 0, 100, 0, 100, 1
 00, 100, 000
 95 2500 0219 00, 000, 000, 00, 00, 00, 0
 0, 00, 00, 000, 00, 000, 100, 1, 00, 1
 00, 100, 100, 100
 96 2500 0219 00, 000, 000, 00, 00, 00, 0
 0, 00, 00, 000, 00, 000, 100, 1, 00, 1
 00, 100, 100, 100
 97 2500 0219 00, 000, 000, 00, 00, 00, 0
 0, 00, 00, 000, 00, 000, 100, 1, 00, 1
 00, 100, 100, 100
 98 2500 0219 00, 000, 000, 00, 00, 00, 0
 0, 00, 00, 000, 00, 000, 100, 1, 00, 1
 00, 100, 100, 100
 99 2500 0219 00, 000, 000, 00, 00, 00, 0
 0, 00, 00, 000, 00, 000, 100, 1, 00, 1
 00, 100, 100, 100
 100 2500 0219 00, 000, 000, 00, 00, 00, 0
 0, 00, 00, 000, 00, 000, 100, 1, 00, 1
 00, 100, 100, 100

LISTINGS

7C 18 80H = 14 MEMORY AND FREE
 0 00 00 *

7D 20 80H = CLEAR THE DATA BUFFS
 BY DEPARTMENT

7E 20 80H = THIS. ENTER IT EXACT
 15 00 00 IT *

7F 20 80H = LISTED BELOW. YOU C
 AN 00 00 *

7G 20 80H = THE DEFINITIONS LISTIN
 G OF THE GAME *

7H 20 80H = YES IN FIGURE 2 OF
 YOUR WORK. *

7I 20 80H = ONCE THEY ARE IN ME
 MORY. *

7J 20 80H *****

 7K 10 00-000 10-10
 7L 10 00000 (1000)-100000
 7M 10 00 000000-00 00000
 7N 70 00000 00 00000 (00000) P
 000-10010 00000 00000 00 00
 000-100000-00000

7O 80 00000 (1000) 0000000000
 (0000000000 IN LINE) 00-000

7P 80 00000 00000 00 00 00 00
 75 10 00 00000

7Q 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7R 100 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00

7S 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7T 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7U 100 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00

7V 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7W 100 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00

7X 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7Y 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7Z 100 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00

7AA 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AB 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AC 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AD 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AE 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AF 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AG 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AH 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AI 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AJ 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AK 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AL 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AM 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AN 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AO 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AP 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AQ 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AR 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AS 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AT 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AU 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AV 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AW 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AX 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AY 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7AZ 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BA 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BB 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BC 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BD 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BE 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BF 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BG 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BH 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BI 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BJ 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BK 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BL 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BM 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BN 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BO 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BP 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BQ 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BR 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BS 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BT 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BU 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BV 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BW 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BX 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BY 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7BZ 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7C0 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7C1 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7C2 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7C3 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7C4 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7C5 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7C6 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7C7 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7C8 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7C9 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CA 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CB 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CC 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CD 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CE 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CF 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CG 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CH 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CI 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CJ 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CK 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CL 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CM 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CN 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CO 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

7CP 20 00000 00 00 00 00 00 00
 00 00 00 00 00 00 00 00

LISTINGS

52	1000	000000	00,00,00,00,00,00,00,00
53	1000	000000	00,00,00,00,00,00,00,00
54	1000	000000	00,00,00,00,00,00,00,00
55	1000	000000	00,00,00,00,00,00,00,00
56	1000	000000	00,00,00,00,00,00,00,00
57	1000	000000	00,00,00,00,00,00,00,00
58	1000	000000	00,00,00,00,00,00,00,00
59	1000	000000	00,00,00,00,00,00,00,00
60	1000	000000	00,00,00,00,00,00,00,00
61	1000	000000	00,00,00,00,00,00,00,00
62	1000	000000	00,00,00,00,00,00,00,00
63	1000	000000	00,00,00,00,00,00,00,00
64	1000	000000	00,00,00,00,00,00,00,00
65	1000	000000	00,00,00,00,00,00,00,00
66	1000	000000	00,00,00,00,00,00,00,00
67	1000	000000	00,00,00,00,00,00,00,00
68	1000	000000	00,00,00,00,00,00,00,00
69	1000	000000	00,00,00,00,00,00,00,00
70	1000	000000	00,00,00,00,00,00,00,00
71	1000	000000	00,00,00,00,00,00,00,00
72	1000	000000	00,00,00,00,00,00,00,00
73	1000	000000	00,00,00,00,00,00,00,00
74	1000	000000	00,00,00,00,00,00,00,00
75	1000	000000	00,00,00,00,00,00,00,00
76	1000	000000	00,00,00,00,00,00,00,00
77	1000	000000	00,00,00,00,00,00,00,00
78	1000	000000	00,00,00,00,00,00,00,00
79	1000	000000	00,00,00,00,00,00,00,00
80	1000	000000	00,00,00,00,00,00,00,00
81	1000	000000	00,00,00,00,00,00,00,00
82	1000	000000	00,00,00,00,00,00,00,00
83	1000	000000	00,00,00,00,00,00,00,00
84	1000	000000	00,00,00,00,00,00,00,00
85	1000	000000	00,00,00,00,00,00,00,00
86	1000	000000	00,00,00,00,00,00,00,00
87	1000	000000	00,00,00,00,00,00,00,00
88	1000	000000	00,00,00,00,00,00,00,00
89	1000	000000	00,00,00,00,00,00,00,00
90	1000	000000	00,00,00,00,00,00,00,00
91	1000	000000	00,00,00,00,00,00,00,00
92	1000	000000	00,00,00,00,00,00,00,00
93	1000	000000	00,00,00,00,00,00,00,00
94	1000	000000	00,00,00,00,00,00,00,00
95	1000	000000	00,00,00,00,00,00,00,00
96	1000	000000	00,00,00,00,00,00,00,00
97	1000	000000	00,00,00,00,00,00,00,00
98	1000	000000	00,00,00,00,00,00,00,00
99	1000	000000	00,00,00,00,00,00,00,00
100	1000	000000	00,00,00,00,00,00,00,00

LISTINGS

58	1698	0470100	0	174,40	10,50	2,000	1,000	10,100	1,000	10,100	1,000
59	1700	0470100	0	200,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
60	1702	0470100	0	220,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
61	1704	0470100	0	240,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
62	1706	0470100	0	260,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
63	1708	0470100	0	280,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
64	1710	0470100	0	300,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
65	1712	0470100	0	320,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
66	1714	0470100	0	340,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
67	1716	0470100	0	360,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
68	1718	0470100	0	380,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
69	1720	0470100	0	400,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
70	1722	0470100	0	420,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
71	1724	0470100	0	440,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
72	1726	0470100	0	460,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
73	1728	0470100	0	480,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
74	1730	0470100	0	500,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
75	1732	0470100	0	520,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
76	1734	0470100	0	540,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
77	1736	0470100	0	560,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
78	1738	0470100	0	580,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
79	1740	0470100	0	600,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
80	1742	0470100	0	620,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
81	1744	0470100	0	640,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
82	1746	0470100	0	660,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
83	1748	0470100	0	680,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
84	1750	0470100	0	700,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
85	1752	0470100	0	720,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
86	1754	0470100	0	740,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
87	1756	0470100	0	760,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
88	1758	0470100	0	780,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
89	1760	0470100	0	800,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
90	1762	0470100	0	820,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
91	1764	0470100	0	840,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
92	1766	0470100	0	860,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
93	1768	0470100	0	880,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
94	1770	0470100	0	900,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
95	1772	0470100	0	920,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
96	1774	0470100	0	940,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
97	1776	0470100	0	960,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
98	1778	0470100	0	980,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000
99	1780	0470100	0	1,000,00	10,00	2,000	1,000	10,100	1,000	10,100	1,000

Repairs Guide

PHONE JON WATSON
ON
01-437 0699 EXT. 281

Repairs Guide

SPECIALIST COMMODORE REPAIRS

Commodore Home Computers and Peripherals repaired in new high tech workshops.

Commodore 64	£85.00	1st/2nd Logic Fault	£22.50
Commodore 6128	£110.00	Commodore 128	£35.00
Commodore +4	£150.00	800/1028/502 Peripherals	£35.00
121 Improvement	£25.00	Commodore Workdisk	£14.00

These prices include postage and a four month warranty.

All repairs are thoroughly test checked with the latest diagnostics and test equipment to ensure they meet comprehensive fitness for use criteria. Repairs carried out by ex-commoode technicians. Please enquire before cheque/postal orders with repair made payable to G-TBS.

G-TBS, Unit 6, Limeside Centre, Watton Industrial Estate, Coxy, Northants, NN17 1EJ. Telephone day: (9536 69454) Telephone evenings: (9536 20178) 24 hours. (Orders in December delivered January 1988)

1988 ADVERTISING



ADVERTISE YOUR SERVICE IN THIS SPECIALIST REPAIR GUIDE.

DEADLINE FOR NEXT ISSUE
28th JANUARY

YOUR COMMODORE

Lineage: 54p per word,

(including VAT).

Small display: £11.75 per single column centimetre

(including VAT) minimum 3cm. Ring for information on vertical bookings discounts.

All advertisements in this section must be prepaid. Advertisements are accepted subject to the terms and conditions printed on the advertisement rate card (available on request).



01-437 0699

Send your requirements to:

JON WATSON
ASPLTD, 1 GOLDEN SQUARE,
LONDON W1

HARDWARE

TAPES BACK-UP BOARDS

FOR COMMODORE 128 & 128C 20

Two 128 C 1 with a standard COMM tape
back-up board for extra protection of
files. Price very low. See
table below.
COMM BACK-UP BOARD has a built-in
RAM buffer. When the tape drive is
idle, it transfers the data into the
buffer so the tape drive is always
ready to write. This saves time and
prevents the tape drive from
becoming too hot. Price very low. See
table below.
COMM BACK-UP BOARD has a built-in
RAM buffer. When the tape drive is
idle, it transfers the data into the
buffer so the tape drive is always
ready to write. This saves time and
prevents the tape drive from
becoming too hot. Price very low. See
table below.

All merchandise guaranteed for one year.

Send your enquiries to, or orders to:
TECHNOSPHERE
48, HIGHWAY, BRACKLEY, N. LEAS,
WILTS, BA15 2LW. Phone: 01296 841 282.
Fax: 01296 841 285.
See pages 10/11.

SPECIAL OFFERS

C64 & +4 POWER SUPPLIES

in stock £17.99

inc. P.M.P.

Chaps. P.O. Box

W.E.

High House
Fresno-Dr-Wyys,
Hereford,
HR2 9JU

DISCOUNT SOFTWARE: Latest
offer for COMM 128 at 75% off
R.P. £48. To: A & B,
Ridgeway Road, London, E16 5BT.

Quicker! Better! Cheaper!
As a result of the new
software, the price of the
software is reduced to 75% of
the original price. This is a
great opportunity to buy the
software at a price that is
hard to believe. See our
offer on page 10.

DISCOUNT SOFTWARE: Latest
offer for COMM 128 at 75% off
R.P. £48. To: A & B,
Ridgeway Road, London, E16 5BT.

SERVICES

COMMODORE DISK LIBRARY

Free membership. With
subscription, send 3 x 14p
stamps for details.
The Commodore Disk Library
20 Cannon St, Derby.

BUSINESS OPPORTUNITIES

IDEAS, INVENTIONS wanted
CALL 1315 81 434 9372 or write
David ASPY 899 Regent St, London
W1.

LANGUAGE

FORTH AND LISP FOR THE COMM 128 C128

These languages are available on
160 K/200 Cartridges.
8-card £64.95 9-card £28.90

LETCHERWITH SOFTWARE
49 South Essex, South Essex, Essex
S28 4LL. Tel: 04623 473333

COMM 128/128C

Available to 128 - 70
K. Also available to 128 - 70
K. Also available to 128 - 70
K. Also available to 128 - 70
K.

TELESA, TELSA, TELSA
No. 15 Penton Place, W8B 6AA
0203 1503

IS YOUR 128 GROWING UP OR GROWING OLD?

Stretch Software Club offers
everything you need, we have a
course designed to get you
software, updated info and more
for COMM 128 hardware 200
members.

If you are feeling a bit support
from Commodore or SGWS for
the 128 then write for more
details -
Ericsson, Emma Road,
Delford, Wuxie, W8B 6AA

SOFTWARE

X RATED ADULTS ONLY GAME FANTASY

Commodore 64/128 £6.95
800 pages

Available to persons over 18
only. Please state age when
ordering.

R/W MICROTIC

10 High Way, Stoneham,
Bucks SL2 4EO.

SOFTWARE

**DO YOU OWN A HOME
SOFTWARE?** Do you want something
more than the usual boring games
? This is most certainly for you. Don't
just play it, become part of it
starting your own home based
business. Full or part time. For
FREE details write to: Mr &
Mrs W.C. King, 81 Fern Place,
King and Queen Street, Warrington,
Lancs WA1 1TH.

LOOK OUT FOR COMMODORE DISK USER.

B R E A K

OOPS!

A number of grammar have appeared in the Your Commodore works over the last few months. This is the page where we come clean and give you the latest updates when needed.

Disk Users Handbook

A number of people are reporting errors in some of the programs in this supplement. Again there are no problems in the programs as published. However, should you be getting a SYNTAX ERROR after you have entered the POKEs given in the instructions you will find details here of how to get around this.

The POKEs to memory locations 43 and 44 are moving the start of Basic to a new area of memory. The new start of Basic can be worked out by the simple equation:

(No. Poked in 43)+(256*No. Poked in 44)

The previous memory location to the start of Basic must always contain the number '0'. Should a zero not be present here then you will get a SYNTAX ERROR after entering the NEW instruction. Modifying the POKE instructions to the following will allow you to use the programs correctly:

```
1540 Fast Loader
POKE43,POKE44,0:POKE4095,
0:NEW
Menu Maker
POKE43,0:POKE44,16:POKE4460,
0:NEW
```

December 1987

The mad mathematician seems to have got hold of the Budget Calc program somewhere in the production of this article. A number of lines need additions/subtractions in order to get the program working correctly.

```
BUDGET CALC
1640 should have 13 comma rights not 10
1650 the GO on the end should be
GOTO 2600
1660 IF MR(T)='0'THENHMH(T)
='TRIGHT'ORR/GOTO 1610
```

```
BUDGET REVIEW
1640
```

```
PRINT 'TRIGHTS,CM,SPC&CM,
SPC&CM,SPC&CM'
```

Serious Users Guide

A number of people have reported problems with the Plus/4 Transcript program. It appears that a couple of data lines were corrupted in our listing. Please find the correct lines here. If you have typed in the transcript program all that you have to do to enter the corrections is enter the monitor and use the M command to modify the incorrect portion of code (see your manual for details).

```
1261 20 BA FF A6 08 20 BD FF:
1269 20 CB FF A2 BF 20 C6 FF
1261 20 CF FF C9 20 D6 11 20:
```

A number of people have reported having problems with the Multiple program. To our knowledge there are no errors in this as printed. It appears, from copies of this scanned to the office, that many people are trying to RUN this program without reference to the program instructions. You MUST set up a number of program lines yourself BEFORE you attempt to run the program otherwise you will get a SYNTAX ERROR.

The first line that is giving people problems is number 500 in MULTIPLE. Of course this line will give you a SYNTAX error. There is an incorrect statement, referring to the listing and the instructions you will use that F should hold the number of fields. Let's say you wanted 10 fields, line 500 would become:

```
500 F:=FORM * NUMBER OF
FIELDS
```

There are many other lines that need setting up in the same way.

Program Submissions

Due to the illness of our software evaluation some people may be experiencing a delay in getting to reply regarding submissions. We are trying to clear the backlog of programs as quickly as we can but this is taking some time. This backlog also affects Reg. Funders and Librarians.

We apologize for the delay and would ask that you would bear with us while the backlog is cleared.

The publication of Librarians has also been halted because of this software backlog. We will be bringing you more short programs and tips as soon as we can.

January 1988

A number of people are experiencing problems sorting out exactly which listing goes with which article. This was caused by the omission of the program headings from the listing pages. Here is a full list of each article and their programs.

```
Cmd Tags
System - TIMER (77)
          SPOOLER(77)
```

```
Acronym's
Saga - Loader 1 (79)
       Loader 2 (79)
       Loader 3 (81)
       Loader 4 (82)
       Loader 4 (82)
       Loader 5 (83)
       Loader 5 (83)
       Code Saver(88)
Acronym's
Saga (89)
```

```
Enlarging the
C64 - Program 1 (89)
      Program 2 (90)
```

```
Array
Display Sub-
routines - Array Loader
           (90)
           Array (Defns)(91)
```

```
Sprite Library- Vehicles,
              Data (92)
              Vehicles,
              Display (93)
```

```
80 Character
Printout - ROM50-BAS (93)
```

```
Questionnaire 1
          BOOT (94)
          Questionnaire
          1 (94)
```

```
May I
Interrupt? - Listing 1 (95)
            Listing 2 (96)
            Listing 3 (96)
            Listing 4 (96)
```

```
Typing into
the C64 - Career R's
         (91)
         Typewriter R1
         (91)
```


Cut Price Disks from Direct Disk Supplies

from only £10.99 for 20 disks delivered to your door.



Cash 'n Carry prices on disks from Direct Disk Supplies

OFFER 1 Premium Universals One disk for all reasons!

The Premium Universal disk (made by DECDEC) works - outside for all drives needing high quality media. (DECDEC, DECDEC) 40/80 tracks.

20 disks	£ 11.99
50 disks	£ 27.99
100 disks	£ 48.99
200 disks	£ 86.99
250 disks	£114.99
500 disks	£229.99
1000 disks	£459.99

Printed in UK compatible with envelopes, labels, HP labels and more. Disks individually certified and tested (not valid in UK) means no problems and higher reliability Lifetime Warranty.

ALL PRICES INCLUDE VAT & DELIVERY TO YOUR DOOR. NO HIDDEN FEES!

OFFER 2 Rainbows

Here's a disk for each price. Universal coloured disks to take your files and programs. Without compromise value coloured disks are the market. (DECDEC, DECDEC) 40/80 tracks.

20 disks	£ 18.99
50 disks	£ 35.99
100 disks	£ 63.99
200 disks	£120.99
250 disks	£158.99
500 disks	£317.99
1000 disks	£635.99

Printed in UK compatible with envelopes, labels, HP labels and more. Disks individually certified and tested (not valid in UK) means no problems and higher reliability Lifetime Warranty.

OFFER 4 Upgrade Doubles & PC Preformatted

	Highway	Preformed
20 disks	£ 13.99	£ 10.99
50 disks	£ 23.99	£ 20.99
100 disks	£ 43.99	£ 39.99
200 disks	£ 80.99	£ 75.99
250 disks	£105.99	£100.99
500 disks	£205.99	£200.99
1000 disks	£405.99	£400.99

Premium quality individually certified to CE 40/80 tracks for the PC, giving optimum quality of budget prices.

Why not double yourself and buy two formatted - a one extra saves a lot! There's never a disk formatted after you need it.

OFFER 3 Floppies

This is the disk for formatting. Available. One sided two sides. 2 inches and 3 inches holes ideal for DEC, APPLE, Commodore etc.

20 disks	£ 18.99
50 disks	£ 35.99
100 disks	£ 63.99
200 disks	£120.99
250 disks	£158.99
500 disks	£317.99
1000 disks	£635.99

Printed in UK compatible with envelopes, labels, HP labels and more. Disks individually certified and tested (not valid in UK) means no problems and higher reliability Lifetime Warranty.

OFFER 5 Bargain Box

Price per order 20. Approx price per disk (ex VAT)

20 disks	£ 10.99	40
50 disks	£ 19.99	43
100 disks	£ 36.99	47
200 disks	£ 69.99	51
250 disks	£ 91.99	55
500 disks	£183.99	59
1000 disks	£367.99	63

Branded SCOTCH made by IBM DECDEC

After all prices listed offer people's plain paper. Certified error free and recording film disks have no problems (even envelopes) and disks.

Stocks are decreasing quickly, these have been extremely popular.

OFFER 6 - 3.5" Media Life Disks

	50	80
20	£ 14.99	£ 19.99
50	£ 26.99	£ 35.99
100	£ 48.99	£ 63.99
200	£ 91.99	£ 120.99
250	£ 119.99	£ 158.99
500	£ 239.99	£ 317.99
1000	£ 479.99	£ 635.99

NEW LOWER PRICES

3.5" disks in plain shiny cases.

Made by a leading manufacturer, all our disks are individually certified to 100% defect free (no problems included). VAT, Delivery and labels extra!

Same day despatch - at no extra cost!

OFFER 7 3M & Verbatim

3.5" disks 3M/Verbatim	
DECDEC 40/80	744/930
DECDEC 40/80	748/930
DECDEC 40/80	743/930
DECDEC 40/80	746/930
3.5" disks	
DECDEC 100/100	
DECDEC 100/100	
DECDEC High Capacity	

20 disks	£25.99
50 disks	£75.99
100 disks	£149.99

Brand leaders at Cash 'n Carry prices!

If these are your favourite, then don't miss our DECDEC prices for 20 disks. Remember there's no extra, but little extra.

OFFER 8 HI-Dens

PC-AT High Density Disks made by one of our major manufacturers. Available for PC-AT and other High Density drives. Lifetime warranty.

Total price (no extras)

20 disks	£ 32.99
40 disks	£ 62.99
80 disks	£ 98.99
80 disks	£119.99
100 disks	£149.99
200 disks	£299.99
500 disks	£749.99

OFFER 9

3" CF2 disks

Maxell or Panasonic 3" CF2 disks

10 disks	£ 25.99
20 disks	£ 49.99
50 disks	£129.99
100 disks	£259.99

VAT & carriage included.

OFFER 10 Box Clever

Safe! Clean! Tidy!

Means - 8 stylish plastic carry cases for 10 disks. VAT & carriage included.

3.5" 50/100	£8.99
3.5" 100/100	£8.99

Lockable Boxes

100/100 3.5" disk box	£ 8.99
100/100 3.5" disk box	£12.99
50/100 3.5" disk box	£ 8.99
100/100 100 disk box	£12.99
200/parallel printer cable	£3.99

How to order

1. DIAL A DISK ON 01-979 7811, and give your ACCESS or VISA number and expiry date.
2. Send your cheque or 10 Great Britain Pounds (10 £) to Direct Disk Supplies, Ltd.
3. Order forms, blank disk orders from Universities, Colleges, Schools, Charities, and any worthy institution.
4. Cash orders, no minimum value.
5. Return orders, minimum value £20.



Direct Disk Supplies Ltd.

Dept. YC2, FREEPOST, 129 High Street, Hampton Hill, Middlesex TW12 1BR



*It plays like a dream...
but seems like a **NIGHTMARE!***

TRAPPED — in a 1970's arcade machine! Every escape route is blocked by a wall of brightly coloured bricks. Powerfully addictive, with 200k of digitized sound, **IMPACT** has 80 built in screens plus 48 that you can design yourself — as hard, as simple, as much fun as you like. Hidden on each screen are special tokens — catch them if you can. Use them to buy one of nine powerful weapons, or keep them until the end of the screen to score a bonus.



Available now, price £14.95 (for Amiga (512k min.) and Atari ST (requires 512k, mouse and colour monitor or TV)).
Now released for C64/64, Spectrum and BBC (specifications vary).
Audiogenic Software Ltd., Woodchester House, Canning Road, Midsalton,
Harrogate, West Yorkshire HG3 7SA



Tel: 01-961 1166

PASL



**It plays like a dream...
seems like a NIGHTMARE!**

Every escape route is blocked by a wall of brightly lit, digital sound. **IMPACT** has 80 built-in levels – as hard, as simple, as much fun as you like. Win – catch them if you can. Use them to buy one of nine items at the end of the screen to score a bonus.



Available on Amiga (requires 512k, mouse and colour monitor or TV), Atari ST (requires 512k, mouse and colour monitor or TV), and IBM PC (specifications vary).
Gaining Road, Widdleton.

Tel: 01-881 1166



YOUR COMM

AN ARGUS SPECIALIST PUBLICATION

Your Commodore February 1988

WEOS—Window



Volume 4 Number 5

Fontmaster

Unbeatable Programs! — Screen S
Amending C64 Bas