

ATARI USER

Vol. 3 No. 7 November 1987 £1.25

Mysteries of
USR explained

New super-fast
checksum listing

Analysing loans
on your micro

Game of the month:

**GREEDY
GUNTHER**

Reviews:

Printshop Companion
4010 four-head printer
OS Controller board
+ all the latest games



IT'S MAGIC!

*How to conjure up
spellbinding effects*

ACTION · EXCITEMENT · DESTRUCTION
IT IS THE WAY OF THE

JACKAL™

© KONAMI 1986

 **KONAMI**

*Win
an Actual Jackal
Arcade Machine*
See pack for details

COMMODORE DISC £14.95
COMMODORE CASSETTE £8.95
SPECTRUM CASSETTE £7.95
AMSTRAD DISC £14.95
AMSTRAD CASSETTE £8.95
ATARI DISC £14.95
ATARI CASSETTE £9.95



BOB



DECKAR



GREY



QUINT

 **KONAMI**

Another gripping Arcade Conversion

DISTRIBUTED BY: N.M.C. LTD., 2 IFFLEY ROAD, LONDON W8 6PA. TEL: 01-848 9701



For subscription details please send a S.A.E. to:
KONAMI SOFTWARE CLUB

Bank Building, Bank Street, Newton Abbot, Devon TQ12 3JL.

KONAMI HELPLINE
0626 56789

Vol. 3 No. 7 November 1987

Managing Editor:
Derek Mackin

Features Editor:
Peter Davidson

Production Editor:
Peter Glover

Editorial Assistant:
Neil Fawcett

News Editor:
Mike Cowley

Technical Editor:
Andre Willey

Advertisement Manager:
Tony Newell

Advertising Sales:
John Snowden
Nina Lawton

Editor: 011 855 8585
Administration: 011 855 8585
Advertising: 011 855 8585
Subscriptions: 011 855 8575
Telephone Calls: 11 844004
Telex: 262511 BGAUFY G
Catering (Sat. 11 MA) 0291
01988585

Printed in: Great Britain
Published by:
Dorset Publications Ltd,
Europe House, 88 Chester Road,
Hazel Grove, Stockport SK7 5BT

ABC 0000 January-June 1986

Subscription rates for 12 issues, post free:

175 - UK
175 - Europe (incl. Euro)
120 - Overseas (Airmail)

ISSN 0260-088X

"User User" welcomes program listings and articles for publication. Material should be typed on computer-printed, and preferably double-spaced. Program listings should be accompanied by cassette tape or disk. Please enclose stamped, self-addressed envelope, otherwise the return of material cannot be guaranteed. Contributions accepted for publication by Dorset Publications Ltd shall be on an all-rights basis.

© 1987 Dorset Publications Ltd. No material may be reproduced in whole or in part without written permission. While every care is taken, the publishers cannot be held legally responsible for any errors in articles, listings, or advertisements.

"Atari User" is an independent publication and John Chip (JCH) Ltd are not responsible for any of the articles they contain or for any of the opinions expressed.

News trade distribution: Europe Sales and Distribution Limited, Unit 1, Burgess Road, Immingham, Lincs, Humberside, East Sussex TN39 4BN. Tel: 0423 420622.

News	5
All the latest from the ever-changing world of the 8 bit Atari.	
Top Twenty	7
A up-to-date guide to the month's top-selling Atari software.	
USR functions	9
Starting a two-part exploration of the powerful USR command.	
Jargon	11
We bring you the full unexpurgated translation of computer-speak.	
Reviews	13
Our evaluation team takes a look at the latest software releases.	
Tweening	20
Move between shapes, amaze your friends, with this magic utility.	
Get it Right II!	23
A new super-fast version of our popular checksum utility.	
Software solutions	27
Our resident expert helps to solve your programming problems.	
Routes	29
More amazing exploits with our resident Atari adventurer.	
Map	32
A full colour guide to Travelling Circus from Infocom.	
Greedy Gunther	38
Can you help Gunther to collect all the money from the mass?	
Review	39
We take a look at Precision's new four headed printer.	
Computers in Action	41
Find out how much that loan is really costing you.	
The OS Controller Card	42
An in-depth review of a useful Atari add-on from Computehouse.	
Five Users	44
More prize-winning mini programs sent in by our readers.	
Mailbag	47
The chance to get your news, views and name in print.	
Special FX	53
We conclude this fascinating series with software sprites.	
File converter	57
A useful utility to convert Atari/Writer files to Mini Office II format.	
Hints and Tips	61
Get more enjoyment out of your games with our readers' help.	



All major listings in this issue are accompanied by checksums to help overcome typing mistakes. For full details of how they work, see the article on page 23 of this issue of Atari User.

Link your Atari to the outside world with...

MicroLink

Electronic mail - The cheapest and fastest form of communication possible. It costs the same to send a message to one mailbox as to 500!

Telex - Link up with 90,000 telex subscribers in the UK and 1.5 million worldwide. You can even send and receive telexes after office hours or while travelling.

Telemessages - Type in your message before 8pm and delivery is guaranteed by first post the next day (except Sundays), anywhere in the UK and USA.

Tele-shopping - Reserve train and theatre tickets, check flight deals available, or order from a vast range of products - from flowers to floppy disks.

Teletext - Download directly into your Atari any program from the ever-growing library now available on MicroLink - both games and utilities.

Company research - Obtain facts about any British listed company in seconds, and fully analysed financial information on over 100,000 major companies.

Translation - Access the biggest and most up-to-date multi-lingual dictionary in the world, with over 300,000 words.

News - Use the powerful search commands to pinpoint vital business information from the world's leading news services, newspapers and periodicals.

Radiotelex - If you also have a pocket radiotelex you'll be alerted each time an urgent message arrives at your mailbox. So you're always in touch.

Gateways - Get through to New York in just five seconds - or key into the BBC computer in Luxembourg, which links you to 600 databases throughout Europe.

When you join MicroLink you've got the world of communications at your fingertips - 24 hours a day. You'll have immediate access to ALL the facilities offered by Telecom Gold ... and a great deal more besides.



Two recommended packages

If you have an 850 interface:
Price Rightlink manual modem - retail £75.00 PLUS Atari Office 8 (£19.95)
Total price: £94.95

If you use 3 data or interface:
Modem 800200 V.21, V.22 modem - £45.00
+ Datakit interface + cable + teletext software
Total price: £74.95

With either combination you can also log on to other databases and bulletin boards all round the world.

All you need - apart from your Atari - is a modem, which plugs into your telephone wall socket, plus suitable communications software.

We have provided two possible options on the left.

Whichever equipment you use, you will be able to call MicroLink, open your mailbox, save to disc any messages waiting for you, and disconnect in as little as two minutes.



More than 90 per cent of subscribers can connect to the MicroLink computer at local call rates.

TO FIND OUT MORE
Fill in the coupon and send it to the address below. You will receive full details of services and costs, together with an application form. Complete this and submit with you and your Atari will be able to use all the services of MicroLink and Telecom Gold.

Please send me full details about MicroLink, and information sheets about the following hardware and software options (please tick):

Telex package Modem package

Name: _____

Address: _____

Postcode: _____

Send to: MicroLink, Europa House, 88 Charter Road, Hazel Grove, Stockport SK7 9ST.

AT&T

Games console 'stars' on TV

A HARD-HITTING pre-Christmas television advertising campaign has been launched featuring the new Atari games console.

It is part of Atari's commitment to its 8 bit range and backs up the company's prediction of massive sales of video consoles and games before the end of the year.

As an Atari spokesman put it: "With the video games system starting from as little as £49.95, good software

backlog and outlets in a number of leading High Street stores, we can't see how it can fail".

The sleek, colourful and exciting advert with its tightly developed video graphics and stirring music is designed to stand out among the mass of pre-Christmas product promotions on the small screen.

Atari launched the campaign at the PCW Show, where it took the largest exhib-

iting area, occupying more than 1,000 square metres.

Another 40 companies took stands in specially-designed "pavilions" within the Atari area with a range of hardware, software and peripherals which showed the wealth of products now available for Atari computers.

COMIC CAPERS

ONE of the most famous Marvel Comic heroes has been transported to the Atari 8 bit. Captain America from US Gold (021-258 2388) has the superhero set against Dr Megalomann and his Doom Tube.

It is the fourth of July and the whole of America is geared for the biggest celebration since the Bicentennial.

At dawn, however, the President has an uninvited visitor - Dr Megalomann. The badly decorated the President abdicates in favour of him or he will unleash a deadly virus, transported to Central America on a rocket.

Object of the game is to navigate the revolving Doom Tube which is hoisted within six underground decks. Find the missile and destroy it.



A whirl on the wheel

A FORTUNE can be won or lost at the roulette wheel - without endangering the family savings - on a new gambling game for the Atari 8 bit.

Casino Roulette is from COS (0082 21104), the software house which has specialised in bringing traditional games to the home computer.

Using the international or French style table, the game allows up to eight players to gamble at once.

Players place their bets in any combination of 15 wagers allowed. The wheel spins, the number is selected and the program works out the winnings, adds chips to players' stocks and rakes the table.

Features include standard odds, ball analysis which keeps track of individual performances, statistical analysis of the fall of the ball over the previous 20 spins and instructions including a dozen established betting systems.

Price £9.99 on cassette and £14.99 on disc.

Bargains in store at show

EXHIBITORS at this year's Atari Christmas Show have begun to reveal the new products and bargain offers they have in store for 8 bit users.

Last year the first Atari Christmas Show was a resounding success, with nearly 18,000 people packing the Royal Horticultural Hall in London.

This year's show will be held in the plush setting of the Champagne Suite at the Novotel, Ramsgate, with some of its many great computer events staged by Database Exhibitors.

From November 25 to 27, the Atari Christmas Show will mirror all the year's past developments - with emphasis on the entirely new approach to the games market.

All the leading suppliers of Atari add-ons and software will be at the Novotel, their stands piled high with their latest products and out-price offers.

Software Stone has imported a large range of

new cartridge games from America for the 8 bit machines, and will have an increased supply of bargain software on disc and cassette.

A revolutionary multi-function joystick will be launched at the show by PDI Design. The company claims that its new joystick is completely different from all others on the market. Priced at under £75, the joystick includes a free two metre extension lead.

In addition to supplying our price discs, Zonehour will be catering for the games player with more than 30 disc based titles to choose from at the bargain price of £1.99 each.

A full range of bargain cartridge, cassette and disc based games are on offer from MCD. About 80 out-price titles will be available as well as massive savings on Atari 800 and 800 computers, cassette recorders, joysticks and paddles.

A money saving advance ticket order form is on Page 17.

Atari sales are soaring

Sharply improved results for the first half of 1987 have been revealed by the Atari Corporation. Compared with the same period last year income is up more than a massive 132 per cent, with sales showing an improvement of nearly a third at around \$200 million.

"Atari continues to enjoy a favoured market position throughout the world", said a spokesman. "Recent sales were again achieved in both the video game and computer product lines".

"Pursuing a vertical integration, the company intends to make acquisitions in computer or related fields. An active search is underway to identify appropriate businesses whose activities will complement Atari's operations".

The figures show that at the end of the period under review, Atari had \$788 million in capital, as compared with \$40 last year.



The leading North West
Specialist ATARI Dealer



**LABROKE
COMPUTING
INTERNATIONAL**

33 Ormskirk Road
Preston, Lancs.
Tel: (0772) 21474
Mail Order: 27236 or
Bus/Board 6pm to 8am



This Company has given years of full support to ATARI users Countrywide from their retail shop premises at Ormskirk Road, Preston. Now from their NEW Mail Order Depot they can offer the same Excellent service to all Mail Order Customers.

All Software and Hardware is fully tested prior to selling. This ensures Customers receive working items so that returned goods, and all the attendant frustration are a thing of the past. All Hardware is supported by our own 'ON SITE' engineers, therefore quick turn round on all repairs is Guaranteed. All prices quoted are fully VAT inc. and there are no hidden extras, what you see is what you get. Delivery included in price. Please ring for latest prices, new releases, etc.

1000E Computer £119.00
Disk Drive TBA
XC12 Recorder £32.00



2V. D55 D5D	5V. D55 D5D 407PI
Per Disk £1.99	£3.50
18 Disk £18.00	£3.50
18 Disk+Plastic Memory case £17.50	£7.50
100 Disk £150.00	£30.00
500 Disk £650.00	£30.00

All Disk are covered by an
unconditional lifetime guarantee.

TO ORDER: Simply send, or phone your order, stating Full Name, Address, Visa or Access Nos, Cheque or Money order. Inlands payable to Ladbroke Computing International, 33 Ormskirk Road, Preston, Lancs, PR1 2GP.



Our ATARI trained engineers will repair all Hardware in minimum time at competitive rates. Please ring for a quotation. All repairs carry a 90 day warranty.

PRINTERS

Dot Matrix Size A4 10	£249.00
HL 10 (Sheetfeeder)	£35.00
National Panasonic	£140.00
MP100	£100.00
MP100	£100.00
L288 Tractor Feed	£79.00
L288 Sheetfeeder	£39.00
L288B 2page DM	£55.00

All Printers, Disk Drives etc supplied
with cables etc. NO HIDDEN EXTRAS

DUST COVERS

Computers	£3.99
Monitors	£4.99
Disk Drives	£2.99
Printers	£7.99



We have a complete range of Software
in stock and fully tested.

IF IT'S AVAILABLE we have it
Send SAG for full catalogue.

Any Software problems? Queries?
give us a ring we usually have the
answer!

All Dedicated books and mugs in stock

FOR MORE INFO CALL ON THE
ABOVE NUMBERS OR SEND SAG
AND STATE FULL REQUIREMENTS

**SOFTWARE
EXPRESS**
COMPUTER SYSTEMS LTD

**EUROPE'S LARGEST MAIL ORDER
ATARI DEALER**

**XLent
Software**

The First XLent
**WORD
PROCESSOR**



Icon driven, fast and friendly.

£29.95

PCW Review May '87
"Honestly believe it is the
best word processor ever
for the 8-bit ATARI'S."



**XLent
Software**

1029 owners

TEN-PRINT £14.95 (Disk)

A printer utility allowing
you to print and edit fonts,
dump graphic & screens.
"Typesetter" compatible.

**514-516 ALUM ROCK ROAD,
ALUM ROCK, BIRMINGHAM
B8 3HX
PHONE: 021-328 3585**

PLEASE SEND ME YOUR LATEST PRICE LIST

NAME

ADDRESS

I OWN XL KE 526 5285TH 1948

XL answer to the dole queue

ENGINEER Philip Giblin has emerged from the dole queue to the land of self-employed success with the aid of his Atari 8000.

He bought the machine three years ago - adding a Touch Tablet, Atari Artist, 1027 printer and 1050 disc drive - but 12 months later found himself unemployed at the age of 55.

After reading a review in *Atari User* he bought SuperScript and used it to write more than 200 job applications, but without success.

"When, after all this effort, I still couldn't get a job my thoughts turned to self-employment", Philip told *Atari User*.

He decided to solicit support to help him develop a new engineering product and was successful in obtaining grants from business develop-

ment agencies in his home town of Sheffield.

"I added Super 3D Printer II and a 1029 printer which enabled me to produce convincing 3D drawings. The suppliers, German Software, gave me lots of help to modify the program".

Philip's prototype of a self-erecting steel tower for communications and security systems is already nearing completion.

"I'm now receiving financial support from British Steel Enterprise, British Coal and the Government to go into production", he said.

"I'm grateful to both the Atari 8000, and Atari User - they have not only helped me to survive a very difficult time, but have also helped to create jobs for the people of my new Sheffield Skyhook company".

More games on way

A SERIES of games old and new are about to be released on the Atari 8 bit by Tynesoff.

Due out soon is *Winter Olympics '88*, timed to coincide with the opening of the real thing which is taking place at Calgary in Canada.

Tynesoff's (091-414 4811) step six of the most challenging Olympic events have been selected to test the player's abilities to the full.

54 jumping, slalom, downhill racing, tobogganing, the grunting bobsled and speed skating are

all on the £5.95 cassette.

Minix Force, the space war game which sets a lone fighter against the guardians of a fleet of heavily protected motherships, has been rewritten for the 8 bit, price £7.95 on cassette and £9.95 on disc.

Tynesoff's first *Four Great Games* compilation proved so popular that the company plans to release another.

The Atari 8 bit version will have *Who Dares Wins II*, *Space Hawk*, *Maverick* and *Killer Cycle*, at £3.99 for a twin cassette pack or £5.99 on disc.

SILENCE IS GOLDEN

A CLEVER new device which allows computer game players to run their favourite programs without disturbing the rest of the household has just been released.

Chasing these high scores without fear of complaint has been made possible through *Sound Master*, which costs just £14.99 from Database Electronics (091-480 0771).

The package which can be used with all Atari 8 bit machines except the 400

includes a special interface encased in tough plastic with a graded volume control.

The beautifully constructed Russ stereo headphones are fully guaranteed. They come with a special adapter which allows them to deliver crystal clear reproduction with personal stereo or hi-fi systems too.

Every *Sound Master* is supplied in a colourful presentation pack with detailed instructions.

THE
GALLUP
CHART

TOP 20
ATARI SOFTWARE

THIS MONTH	LAST MONTH	TITLE (Software House)	PRICE
1	▲	DECATHLON Firebird	1.99
2	●	180 Mastertronic	2.99
3	▼	MILK RACE Mastertronic	2.99
4	●	STORM Bullfrog	1.99
5	●	ON CUE Mastertronic	2.99
6	●	FEUD Bullfrog	1.99
7	▼	LIVING DAYLIGHTS Domark	9.95
8	▼	GAUNTLET US Gold	9.95
9	▲	SILENT SERVICE Microprocess/US Gold	9.95
10	●	SUPERMAN First Star/Phoenix	2.99
11	▼	FRENESIS Mastertronic	1.99
12	▲	TABLE FOOTBALL Rivco	1.99
13	▲	BOULDERDASH First Star/Phoenix	2.99
14	●	BOULDER DASH II First Star/Phoenix	2.99
15	▼	LEADERCARD Access/US Gold	9.95
16	●	DIZZY DICE Players	1.99
17	●	BMX SIMULATOR Colecoasters	1.99
18	●	MOLECULE MAN Mastertronic	1.99
19	▼	GUN LAW Mastertronic	1.99
20	▼	MICRO RHYTHM Firebird	1.99

Compiled by Gallup/Microscope

Nine games enter the chart this month - you can find reviews of 180, Storm, On Cue, Feud and Boulder Dash II in this issue of *Atari User*. The Top 10 is dominated by budget software with the £1.99 Decathlon holding the number one position.

USA link back in action

THE giant American database Minematics is once again available to MicroLink subscribers after a complete reorganisation.

Minematics' switch to a more efficient system carrier caused the temporary severance of UK links with the dynamic electronic information source.

But now MicroLink subscribers can again chat to enthusiasts in the USA

and tap the vast array of computer related and special interest group sections.

All the old Minematics features are back - plus some new departments - and there are plans for even closer ties with MicroLink.

These include a reverse gateway to allow the Americans to make direct calls to MicroLink and see what's on offer over here.

A new line for the Church

COMPUTER communications systems like MicroLink have become a major focus of interest for Britain's churches.

A joint study of information technology is currently being undertaken by Church House, the Anglican Consultative Council and the British Council of Churches. It will eventually lead to more efficient electronic communication between churches all over the world.

Meanwhile similar assessments on a smaller scale are being conducted in just about every diocese in the UK. Typical of these is the one being done by the Rev Richard Thomas, communications officer for the Diocese of Winchester.

"I'm using MicroLink as part of my brief to explore the whole area of communications", he said. "I believe electronic mail is going to become very important and I'm sure it has a lot to offer the Church - both nationally and internationally - as a communications medium".

Farming baronet on line

DOWN on the farm or in the factory, baronet and MicroLink subscriber Sir Charles Legard is equally at home thanks to computer communications.

Information technology makes sure he's always up to date with what's happening on his North Yorkshire estates in the sale of Fliskering as well as the family businesses in Leeds and Bradford.

Sir Charles farms 1,700 acres of arable land around Scampton Hall, Malton, in addition to running companies involved in engineering and wholesaling electrical components.

Legards have owned land in Yorkshire since the 13th Century, but the mans and modern are now as much a part of the scene at Scampton Hall as the family portraits.

"Whether I'm at home or in one of my offices, computer communications keep me constantly in touch with what's going on elsewhere", said Sir Charles.

Communicating to cut unemployment

TWO organisations at opposite ends of the spectrum are using MicroLink communications as they attempt to reduce unemployment.

Carolee Jobtrain in North London provides local youngsters with opportunities to learn the specific skills which surveys have revealed are most wanted by employers in the area.

There are 120 places on courses in motor mechanics, carpentry and joinery, office skills, catering, and care for the elderly and young children - all leading to City and Guilds or other qualifications.

At the other end of the scale, the Mid-Career Development Centre in Crofton helps business and professional people who have been made redundant or want a more fulfilling job.

The Centre's experienced career counsellors provide individual help to restore confidence and practical assistance in getting a new job.

"Many people find that being made redundant turned out to be a lucky break because it galvanised them into action they might otherwise never have taken", says principal Kieran Dugman.

Your chance
to join
MicroLink
- turn to
Page 4

BR BOOKING EASIER

MICROLINK's convenient British Rail rebooking service has been given a complete update.

It allows subscribers at any hour of the day or night to order train tickets for journeys between London and more than 20 major UK centres from Aberdeen to York.

Subscribers can book their journeys via MicroLink after studying the electronic timetables in the comfort of their own home or office, and charge them to their Access, Accesscard, American Express or Travel Key account. Tickets are sent by return post.

The USR function

One of the most powerful Atari commands explained in detail by LEN GOLDING

USR is the most powerful and versatile function in Atari Basic — but it's also the most poorly documented. You'll come across it frequently in magazine listings, but very few Basic text books give it more than a passing mention. In this two-part series we'll examine the uses for using USR and present a few programs to show how you can make it work for you.

First of all, let's define it. USR is a function (like PEEK, LOG or STRIG) and it allows you to run a machine code subroutine from inside a Basic program. That may not sound too earth shattering, but in fact it adds enormously to the range of things your computer can do.

There are many tasks which Basic can't handle, either because it's too slow or because it doesn't contain the relevant commands. Vertical movement of player-visible graphics, fine horizontal and vertical scrolling, display list interrupts and direct CO calls are among these.

Machine code, on the other hand, can do almost anything and excels at lightning speed, but it makes heavy weather of some tasks which Basic can handle easily, the complex arithmetic, string manipulation and drawing things on screen.

USR gives you the best of both worlds. You can write most of your program in Basic, and use machine code for only those bits that need it. But USR is rather finicky, and you have to be very careful to observe all its rules, otherwise your program will probably crash. So here's how to use it, step-by-step.

First of all you need a machine code routine for USR to execute; if you can't write machine code, you can't use USR. But you don't need to be an expert machine code programmer — even very short and simple routines can be extremely interesting and worthwhile. Here's the simplest we can think of:

```
100 40
110 70
```

This is the equivalent of POKE 760,0, so it's not particularly exciting, but it will serve to demonstrate how USR works. If you were programming entirely in machine code, the routine would be fine in this form, but if it has

```
10 0000
20 PLO
30 L20 40
40 STX P10
50 STZ
```

Program 1: Machine code routine to change color of screen

to be called by Basic and hand control back to Basic afterwards, you need to add two linking instructions.

The routine should start with a PLA (for reasons which will become clear next month), and the very last command must be RTS. The full working machine code routine is shown in Program 1.

You can't type these instructions in Basic, of course. Some form of assembler is needed, such as Atari's Assembler Editor cartridge. This can accept Program 1 in its listed form (which is known as source code) and will convert it into object code — a string of numbers which the 6502 processor can understand.

Since we're planning to run this routine from inside Basic, it has to be stored in memory along with the Basic program. The easiest way of doing this is to write the numbers into your Basic program in the form of DATA statements and get Basic to put them into an appropriate memory location — Program 2 shows one way of doing it. But first you need to convert your source code into decimal numbers.

Any Assembler will work out the numbers for you, but it will usually display them in hexadecimal form. Converting them into their decimal equivalents is easy enough for small routines — just look up the corresponding numbers in tables, or use a hex-to-decimal converter program such as Program 3.

But for longer routines it's worth using a more sophisticated program which will do all the conversion and also write the DATA statements for

```
10 000 000 000
20 0000 0000 110001 000001 0
30 0010 0000 000 000 000 000 000
40 0000010000
```



```
10 000 100
20 001 100
30 002 100
40 003 100
```

Program 2: Basic loader for Program 1

you — we'll give you one next month. The four-line routine at Program 1 translates like this:

Source code	Hexadecimal	Decimal
PLA	60	96
L20 40	80 00	128 0
STX P10	80 10 00	128 160 0
RTS	60	96

These decimal numbers have to be stored somewhere safe in memory, and Page 0 addresses 128 to 1791 is a good place to use while you're learning.

Try running Program 2: if all is well the screen will turn black. No big deal so far, but here's something interesting to try — press Reset to restore the blue screen colour and type NEW to get rid of the Basic program.

Now type X=USR(1000) and hit Return — the screen goes black again — even though there's no visible program in memory. The reason is, of

Now to Page 100

```
10 000 0000 0000 0000 0000 0000 0000
20 0000 0000 0000 0000 0000 0000 0000
30 0000 0000 0000 0000 0000 0000 0000
40 0000 0000 0000 0000 0000 0000 0000
50 0000 0000 0000 0000 0000 0000 0000
60 0000 0000 0000 0000 0000 0000 0000
70 0000 0000 0000 0000 0000 0000 0000
80 0000 0000 0000 0000 0000 0000 0000
90 0000 0000 0000 0000 0000 0000 0000
100 0000 0000 0000 0000 0000 0000 0000
110 0000 0000 0000 0000 0000 0000 0000
120 0000 0000
```



```
10 000 100
20 001 100
30 002 100
40 003 100
50 004 100
60 005 100
70 006 100
80 007 100
90 008 100
100 009 100
```

Program 3: Hexadecimal to Decimal converter

COMPUTERSPEAK EXPLAINED

MANY newcomers to microcomputing are puzzled by the multitude of technical terms and jargon used by the so-called computer experts and sales representatives.

It is strange how straightforward words and phrases take on a completely different meaning when used in a computing context. So we have compiled this easy-to-read guide to computer jargon for the novice:

● "The applications are only limited by your own imagination" - We can't think of anything useful it can do.



PHOTO: STUBBINS

● "Compatible with all Atari add-ons" - Will not work with your computer unless you know more about interfacing than we do.

● "Standard" - We don't know enough about other interfaces to know why it won't work with yours.

● "Universal standard" - We have tried it out on every Atari we could get our hands on.

● "Industry standard" - We copied the design from someone else, and they say it works.

● "Guaranteed delivery within 21 days" - A universal constant, as whenever you ask the question, delivery will always be within 21 days.

JAMES PIE unravels some of the mysteries of micro jargon

● "Delivery will be at the end of the month" - Another way of stating the universal constant, for the moment.

● "In stock" - We have ordered it from the manufacturer.

● "Now in stock" - When the closing date for the advertisement was reached three weeks ago, we were promised delivery inside a fortnight.

● "Tomorrow's technology, today" - It arrived here a day early.

● "Obsolete" - We've had it in stock for more than a week.

● "Will be available shortly" - We haven't actually made one yet, but can foresee no problems.

● "Will be available later in the year" - We discovered a few problems.

● "Will be available sometime next year" - We lost the blueprints.



● "Use your own TV as a display" - Sometimes you may actually be able to read what is on the display as well.



● "Comprehensive documentation" - Roughly photocopied bundle of misspelt typewritten manuscripts as a manual.

● "Extensive documentation" - Large, partially written tome of no technical use whatsoever.

● "Operating system" - Something we sell you every six months or whenever you find the bugs in the last one we sold you.

● "The program can easily be modified to run on other versions of Atari computers" - Sometimes seen at the end of articles. A disclaimer for any intelligence the author might have falsely indicated to the reader.

● "User friendly" - You are asked for every little option and parameter to see if it needs to be included. This will take at least 30 minutes and you will have to go through the whole lot again if you want to change something.

● "Easy to use" - The average graduate of computer science should experience no difficulty.

● "Powerful" - It's so good, even we can't understand it.

● "Advanced" - So complex, even the programmer can't understand it.

Turn to Page 42 ▶

Storm blows up

Program: Storm
Price: £2.99
Supplier: Megasonic, 8-10
Paul Street, London EC2M
4JH
Tel: 01-377 8071

THE beautiful Corine, beloved wife of Storm the Warrior, has been captured by the evil minions of Ura Curn and is being held prisoner in his laboratory somewhere within his castle.

Storm has decided to make his way there and hack and slash and generally chop anything that gets in his way.

To aid him, Storm has enlisted the help of his comrades and powerful wizard, Agrivain the Undefeatable.

Unlucky for the two heroes, Ura Curn has left his castle

to search for a mystical box called The Feet. So off they trot to create complete havoc and destruction.

The game has a two-player option (Storm and Agrivain, the Undefeatable respectively) with the heroes controlled by joystick.

You must battle your way through the game avoiding the deadly traps while watching out for Ura Curn's evil minions who lurk around the castle.

The onscreen display has the score and energy level for both players at the top with the main game screen directly underneath.

Here are some useful starting points: You must collect three breads before you are able to unlock the door to Ura Curn's laboratory.



The armour will provide protection for you against Ura's evil minions, while food and restorative fluids will improve your energy levels.

Various scrolls and amulets will temporarily destroy the evil horde, and the Mask magic is very powerful so use it wisely.

While Cabbages will release traps, sometimes this will end in trouble.

The play card describes this game as a thrilling,

highly addictive arcade adventure—it impressed me because of the quality.

If you want a challenge but don't want to break the bank, buy Storm and see how much havoc you can cause on a peaceful sunny day.

Elizabeth Jones

Graphics	8
Sound	7
Playability	8
Value for money	7
Overall	8

Right on cue

Program: On Cue
Price: £1.99
Supplier: Megasonic, 8-10
Paul Street, London EC2M
4JH
Tel: 01-377 8071

DON'T worry if you can't decide whether you'd prefer to play a snooker or a pool simulation on your computer. On Cue gives you both of these green below games on a single cassette. That works out at just under £1 a simulation.

And the games are good. Most of the display is taken up with an overhead view of a black (not green!) table with red cushions. At the bottom of the screen is a message area used for keeping a record of the score, whose turn it is and various prompts.

The balls are clearly depicted and it is not difficult to distinguish between

the colours. For example, the black ball in snooker is specially marked so that you can pick it out against the black background.

Controlling your shots both a single joystick only is simple and involves three stages. You are prompted by an appropriate instruction in the message area at the bottom of the screen at each step of the way.

First you move across to the point at which you are aiming. Then you select the direction of the spin. Finally you dictate the strength of the shot by setting the power meter — and away flies the ball.

From time to time it may be necessary to position the cue ball — this, too, is accomplished with a simple joystick movement. There is also an option to edit the table.

The balls move quite



smoothly and while some of the collision effects are a little unpredictable — sometimes a ball may stop suddenly or continue rolling for longer than seems probable — overall the simulation is quite decent.

The cassette has been recorded so that both games are present on both sides of the tape, with snooker being first on one side and pool first on the other. A thoughtful touch.

You can opt to play against another player or

the computer and the micro's skill level can be adjusted to suit your own taste.

On Cue is an entertaining pool and snooker simulation.

At this low price, it represents an opportunity too good to be missed.

Bob Chappell

Sound	8
Graphics	7
Playability	8
Value for money	8
Overall	8

Bull's eye

Program: *MS*
Price: £19.99
Supplier: Mastertronic, 21-22
Paul Street, London EC2A
4DA
Tel: 01-277 8877

If I were to talk of the "crafty creatures", which sport would you visualise? The only possible answer could be darts and *MS* is the new darts game from Mastertronic.

You have three basic options: Practice, tournament or the two-player game. The practice game is very useful and I recommend that you play it to get a feel of the joystick movements.

You are playing against the clock and have to hit the numbers in sequence from 20 to 1. This isn't easy but is fun and can improve your aim for the competition

proper to come later.

In the tournament the computer can field eight different opponents. You come into the tournament at the quarter final stage and have to beat three opponents to win the world championship.

Your opponents all have improbable names such as Billy Bill, Limp-Wrist Larry and the World Champion is called Jeremy Jim.

Each player has his individual style with favourite own doubles and finishing techniques. The instructions add that it is useful to work these out but it didn't improve my game greatly.

The choice of opponent is random and so you get a different game almost every time.

The main game is standard multiplayer darts, where two players play against one



another to see who can score 501 first. The winner must win on a two out of three basis — called a set.

You can aim at any part of the dart board but you must remember that you have to finish on a double.

You aim with the joystick. When the dashboard appears push your joystick up to set the hand in motion, all movement is by using the diagonals, and the dart is released by pressing fire.

The game contains a lot of humour and is superb value

for money. If you score the magic 100 the computer will let out a digitised yell of "100!".

The graphics are nice and the movement of the hand is very smooth and this game will give the enthusiast hours of lasting enjoyment, cheaply.

Bob James

Graphics	4
Sound	4
Playability	4
Value for money	4
Overall	4

Feudin's fun

Program: *Feud*
Price: £19.99
Supplier: Bulding Software,
8777 Paul Street, London
EC2A 4DR
Tel: 01-277 8877

THERE were once two brothers, Leoric and Leoric, extremely knowledgeable in the arts of magic, and they lived together in peace and quiet in the small village of Little Duffield.

Then one summer Leoric turned his brother into a frog. Not a very nice thing to do to anyone, let alone your own brother. After a week, Leoric was returned to human form, but already the dark clouds of a feud were beginning to build up.

Then everything changed. The forest went quiet, then shouts, bangs and explosions erupted from the trees. Leoric left his house

to move to the other side of the village, and the feud began. And soon beside anyone who got in their way.

That's the story, so on with the game. Leoric is now your deadly enemy, and will do his utmost to destroy you. So, as all good feuds go, you have to destroy your brother, or be destroyed.

To do so, you must travel around the kingdom (mainly in the garden of the farmer Heke) collecting herbs in order to mix and cast spells of different results.

But the villagers, especially Heke, don't take kindly to wandering wizards lugging it out in their back yards, especially Leoric (for some unknown reason), who is controlled by you.

To collect a herb, you just stand in front of it and walk towards it. Leoric will then



head down and pick up the herb.

Then the page on which the herb is shown will suddenly flap into view (a nice touch). To mix a spell, you have to stand in front of the cauldron, press fire and left or right to move to the page in the spell book with the spell that is required.

Release the fire button, and bingo, the spell will be mixed, but only if you have both ingredients (shown in red). You will then be armed with that spell.

Fantastic graphics, great sound, addictive gameplay and lots and lots and lots of action-packed screens make this game a must. And for only £19.99, it may not appeal to everyone, but if you've got some time to spare play *Feud*. You won't be sorry.

Robert Owen

Sound	4
Graphics	4
Playability	4
Value for money	4
Overall	4

Slightly soured

Program: Milk Race
Price: £1.99
Supplier: Mastertronic, 4 Paul Street, London EC2A 4PP
 Tel: 01-277-6411

THERE have been racing games galore on the Atari and most seem to bear more than a passing resemblance to Pole Position. Now Mastertronic has released Milk Race, the target of which is to win a cycle race around Britain.

You start in Newcastle, and must make your way down to London before a certain date in order to win the race.

The game starts with a nice piece of music, and a colourful splash over the title page. You are also presented with the option to turn the music on or off.

You begin on the line with

a few other racers when the starter waves a flag, and you're off.

Well, not quite. Other racers do have a nasty tendency to cycle up behind you and knock you off.

If you do manage to pull away without mishap, you can work your way through the bike's 12 gears to gain maximum speed.

As you speed up your energy level decreases, so you must collect pints of milk, found in bottles strewn along the roadside, to replenish your falling energy stock.

These come low and far between, so when you do see one make sure you get to it before the other racers, or they'll take it.

Cars also zoom along the roads (which in itself is strange, as cars are banned from travelling along the

THE 1987 MILK RACE ROUTE

THE 1987 MILK RACE ROUTE STARTS IN NEWCASTLE AND ENDS IN LONDON. YOU MUST MAKE YOUR WAY DOWN TO LONDON BEFORE A CERTAIN DATE IN ORDER TO WIN THE RACE. YOU START IN NEWCASTLE AND MUST MAKE YOUR WAY DOWN TO LONDON BEFORE A CERTAIN DATE IN ORDER TO WIN THE RACE. YOU START IN NEWCASTLE AND MUST MAKE YOUR WAY DOWN TO LONDON BEFORE A CERTAIN DATE IN ORDER TO WIN THE RACE.



same roads as the racers) so make sure they don't hit you, or it'll cost you another few precious moments.

Crowds watch from the roadside, but some spectators must be as fast as the racers, as they disappear every so often along the route.

The racers are all exactly the same, so it's almost impossible to tell who you are without wiggling the joystick from side to side, thereby losing precious time.

Gaining speed is extremely difficult, and when you do actually manage to collect a milk bottle, the energy level rises by a most insignificant amount.

I am more than a little disappointed.

Robert Swan

Sound	4
Graphics	5
Playability	5
Value for money	4
Overall	5

Spellbinding

Product: Droid
Price: £9.99 (successor) / £4.99 (old)
Supplier: Firebird, Four Road, 84-88 New Oxford Street, London WC1A 1PS
 Tel: 21-279-6333

IN the kingdom of Balon balance of power and peace has been held for many years. But this peace has now been upset by the arrival of four demon princess, who have appeared through an interdimensional gateway and arrived in the Dungeon of the thoroughly evil Loh Asramman.

Terror has now spread across the kingdom, and the best of their destruction has been passed into your hand.

As the last of the Great Druids you must heroically cast aside all fears and do mortal combat with the evil ones.

You must search the lands collecting keys that allow you to travel through the eight dangerous levels, infested with hordes of evil creatures including snakes, slugs, beetles and demons.

Your only weapons are the awesome spells you have at your disposal if you find the magic chests containing them.

Most effective is the golem spell, which creates a creature to protect you. You have the option of controlling the golem by joystick or having the computer control him for you.

As you move around the various levels you will find several chests. Opening them is simple - just walk on to them. You will now be able to use the spells contained within.

However, this acquisition is not without risk, as once you have removed anything from a chest the Prince of



Darkness will sense that it has been opened and destroy it so that no more spells can be taken from it again.

If any of the creatures you encounter touch you they will drain your energy reserves - indicated by a bar in the top left of the screen.

To recharge your energy, Pentagrams of Life have been scattered around. By standing on them you will be partially restored. Creatures can be destroyed with spells by pressing the fire button.

Snails are scattered

around the dungeon levels and allow you to go up or down levels.

I enjoyed Droid - an arcade style shoot-em-up, which involves thought if you want to finish. The graphics are clear, the sound acceptable, and the scrolling very smooth.

Nail Penwell

Graphics	5
Sound	5
Playability	5
Value for money	5
Overall	5

Dashed good

Product: Boulderdash II: Rockwell's Rat
Price: £7.99 (suggested) £4.99 (MSRP)
Supplier: From Leisure, Unit 1, Brook Road, Epsford, Melbourne 3241 (AU).
 Tel: 01 884 9100

THIS is one of those games where I would like to take the programmer by the hand and give it a good shake. Very rarely do I get addicted to a game, but this one had me playing until early in the morning.

You are met by a superb title screen and from there it gets better. The game has everything going for it, stunning graphics, superb scrolling, neat sound effects and the sweet little hero you would ever want, Rockford the kobold.

Game play is as for the original Boulderdash and

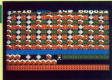
equally as addictive, and we now have it in the shops for a fantastic £2.99.

Rockford must search through each cave and collect as many jewels in as short a time as possible. Once this is done a door to an escape tunnel will appear. This is the easy part of the game, and luckily the boulders scattered around the screen fall in predictable patterns.

This does however leave the growing amoebas, fireflies and butterflies. You will have to kill them to turn them into jewels.

And a good deal of thinking and strategy is required if you want to survive.

You start with three lives and gain an extra one for every 500 points scored. Another life is also gained if you succeed in finishing a bonus screen.



There are 16 caves (A-P) to conquer each consisting of several scrolling screens, not including the four transmission screens.

Each cave has five difficulty levels and you have a choice of four caves from which you can start (A, E, I or M).

You can choose a combination of level and starting cave from the main menu using the joystick. On levels four and five you must start in cave A.

Rockford's animation is

superb; if you leave him standing around for too long he stamps his foot and blinks at you.

If you haven't been initiated into the world of Rockwell here is your chance, so don't miss out.

Neil Fawcett

Sound	9
Graphics	10
Playability	10
Value for money	10
Overall	10

Tricky text adventure

Program: Escape Part 1 and 2
Price: £3.99 each (suggested) £4.95 (MSRP)
Supplier: AD400, 40 Children Gardens, New Malden, Surrey KT3 6RT.

ESCAPE is a two part text adventure designed to run on smaller-memory Atari Micros (those with at least 16K).

Availability is by mail order only. Escape follows the traditional path of text adventures for limited memory machines. That is, locations, vocabulary and descriptions are necessarily restricted and input is generally of the single verb and noun variety.

However, what marks Escape for special attention is the fact that a lot of solid puzzles have been crammed into each of the two parts, making them especially good value for money.

Another point worth

mentioning is that owners of smaller Ataris have been spared of good adventures, and any decent programs that try to satisfy this hunger deserve to be treated with respect.

As special agent AD400, Escape Part 1 sets you down in a foreign prison. Not only must you set about an escape attempt, but you must also make adequate preparation for Part 2.

The second part cannot be played until you have successfully completed Part 1 - you need a special password that only victory in Part 1 will produce.

You begin in the prisoner's quarters in which there is a stove and mirror. Your door is not locked, and you are free to roam the prison's inner confines.

However, escape is not going to be that easy - a guard is constantly on hand.

While nothing nasty will happen if he catches you out

of your cell, he will confiscate any object you happen to be carrying and return it to its rightful place.

And he's not the only one who will retrieve any items you are not supposed to have. The governor, mail clerk and store clerk are ever vigilant too.

Locations include a guardhouse, mess hall, kitchen, stores and offices of the mail clerk, governor and store clerk. There are other places, but most can only be accessed after you've found the entrances or unlocked locked doors.

Escape Part 1 is fairly straightforward, but by no means a walk-over. Part 2 is a shade tougher. In this you must complete your escape from the prison.

You start just outside the gatehouse. It is dark but there's a full moon and a light breeze.

In the stores nearby you'll find a map, compass, bottle, candle, wire cutters, mail-

bag, matches, coal dust and chocolate - perhaps you amassed this collection during Part 1?

There are some neat puzzles in this adventure, my favourites being the one which involves making your face less likely to be seen in the dark. As the author told me, all you need is logic.

Escape Parts 1 and 2 are good value for money, certainly as they do a good variety of puzzles and an enjoyable challenge.

You can obtain even better value if you buy the two parts together (Save £8.75, disc £7.75).

These are two little gems you would be well advised to acquire.

Bob Chappell

Presentation	7
Atmosphere	7
Plot/Content	8
Value for money	8
Overall	8

The big event of 1987...

Atari User Christmas Show

Organised by
Database Exhibitions

**Champagne Suite, Novotel,
Hammersmith, London W6**

10am-6pm Friday November 20
10am-6pm Saturday November 21
10am-4pm Sunday November 22

*The record-breaking Atari User Show is back
- with three action-packed days devoted to
the ever-expanding Atari market.*

- Try out the very latest UK and US 8-bit software
- See the full ST range, including the new mega-ST
- Snap up the never-to-be-repeated bargains
- Expand your system with powerful new add-ons
- Get helpful advice from Atari User's own experts
- Experience the fascinating world of communications
... and much, much more!

This is the one show you mustn't miss!

**SAVE
on your
discount
ticket**

Bring this
coupon to
the show to
get 50p per
person off
the normal
admission
price of
£3 adults
£2 (under 16)

**50p
OFF**

**ATARI
USER
CHRISTMAS
SHOW**

Friday November 20
10am-6pm
Saturday November 21
10am-6pm
Sunday November 22
10am-4pm
Champagne
Suite, Novotel,
Hammersmith,
London W6

ATARI

ATARI

ATARI

A A A A

A A A

A A A

A A A

A A A

Between shapes

SIMON REASON introduces you to the gentle art of tweening on your Atari

TWEENING - short for in betweening - is the changing of one shape to another. The shapes involved are mainly wireframe and amazing effects such as the title screen in *Electroglide* can be achieved.

The listing presented here gives you the power to tween several objects, using up to about 50 points, a number which is determined only by memory limitations.

Type in listing 1 and use the new Get It Right checksum program to ensure you have made no errors.

When you run the program you are first asked to enter the maximum number of points for your shapes and here you must type in the number of corners the most irregular one will

have. The display will then show a flashing dot on the screen which can be moved around by the cursor keys or a joystick. Pressing Fire on the joystick or Return on the keyboard will set that position as a point of your shape.

To help you draw the shapes, you can add a grid of lines or dots. Pressing G will display a grid of lines, 10 pixels apart and pressing D will display a grid of dots each five pixels apart. Pressing the same key again will toggle the grid off.

To tween two shapes which have different numbers of points, the shape which has the least number will have one corner as two corners, so it will appear that the shape has one side less than it really has (see Figure 1).

MAIN VARIABLES

MAXX/MAXY	Maximum x and y coordinates for the drawing area
MINX/MINY	Minimum x and y coordinates for the drawing area
P	Number of points to each shape
X,Y	Current x and y positions of the drawing cursor
ACTUAL/ODL	Colour of the pixel under the cursor Colour that the line to the current point will be
AX(L)AY(L)	Location of each point for shape A
BX(L)BY(L)	Location of each point for shape B
HZ(L)	Horizontal step for moving between AX and BX
VT(L)	Vertical step for moving between AY and BY
PE(L)PY(L)	Points which will form the current shape during tweening
COL(L)	Colour of the line to each point of both shapes
PK(L)	The PE(L) of location 764 to check for a key press
BT	The value for the joystick (STROKES)
X1,Y1	Temporary coordinates for the cursor when it is being moved
MX	Number of frames in the tweening minus 1 (up to 12)
STORE	Location of the current frame being displayed or stored
S	Size of the delay during animation of the tweening
GRD	Flag indicating whether the grid is on or off
DOTS	Flag indicating whether the dots are on or off

This can be done with any number of points, so that any real-life shape may be tapered to any other.

Pressing **C** before setting a point on the screen will toggle the colour of the line to that point between white and black so you can draw invisible lines as part of your display.

This may only be done with the first shape and when the second is being drawn, then the colour which has already been selected on the first shape will be shown at the bottom of the screen.

An invisible line will not overwrite a white line that has been drawn so it is possible to tween more than one object. Each object tapered is connected by an invisible line. The current colour, point and shape number are displayed in the text window below the drawing.

Once both the objects have been drawn another sub-menu will appear giving you the option to join up the first and last points of the shapes or break them so that they are not joined up. The menu tells you whether those points are currently joined.

Once everything has been set up the computer takes control. Initially it draws your two shapes and joins each point to each corresponding point, ignoring invisible lines. This shows the path each point should take.

Then it asks you to press a key, and begins calculating the tweening. This is the slow part of the program.

Each point is moved, and its new location displayed on the screen as a shape. This screen is stored in memory for recall later. This process is repeated 10 times, and may take quite a while as each point is recalculated. On finishing, the program proceeds to animate the tweening at high speed.

Pressing **<** will slow the animation down and **>** will increase the speed. Pressing any other key will freeze animation, and transfer you to the last menu, which allows you to animate the tweening again (**R**), re-run the program with new shapes (**C**) or quit (**Q**).

If you don't want to type the points each time you run the program, Listing 1 adds load and save features to it. Unfortunately it also restricts the number of usable points to about 30.

To merge this new routine with Listing 1 type it in slow and hit it to tape or disc using **LIST 'C:'** or **LIST "D:\filename"**. Then load Listing 1 and merge the new lines using **ENTER 'C'** or **ENTER "D:\filename"**.

When you run the new program you will be prompted at the appropriate places to load or save sets of points if you wish.



Point A becomes point F
Point B becomes point G
Point C becomes point H
Points D and E become point I

Figure 1: To tween a five-sided object to a four-sided object

So that's how to tween one shape into another. You can create fascinating displays that will keep your friends mesmerized for hours.

Turn to Page 20



✓ Get it right! II

André Willey presents a new superfast checksum utility

THE single most common topic cropping up in your letters must be that of mistakes made when typing in programs. Many of you, can't seem to get to grips with our checksum program — particularly with LISTing your program, loading and running Get It Right and then having to re-load the original program before you can make any changes.

One or two of you have passed adverse comments about the speed with which the checksums appear on the screen.

Over the past few months your faithful technical editor has been working his way through all the letters and comments on the subject and after much research — I can now proudly present the great new all-singing, all-dancing Get It Right — Version II.

The first major difference is that GRII is written completely in machine code for much greater speed. Also there is no need for you to constantly save and reload your programs since GRII sits permanently in memory and is always ready for use.

In addition it does not require the use of page six — or indeed any of the zero-page locations — thus making it compatible with almost any program you might wish to type in.

The first thing you will need to do is type in Program I. This is a fairly simple Basic program which will make a load cassette or autorun disc containing the GRII routine itself.

We have printed — for the last time — the old Get It Right! checksum table so you can make sure that you have typed it in correctly. Don't worry too much if you still haven't mastered the old system, as this program will not continue if you've mis-typed any of the data lines.

When you're sure you've typed it in

correctly, run the program and you will be asked if you want to make a tape or disc version. Press C or D accordingly and the computer will prepare the machine code for that version. This will take about 45 seconds.

Cassette users should now place a fresh tape in the recorder and wind it to the beginning. When you hear two beeps press the Record and Play buttons followed by the Return key. The computer will create a tape version of GRII for you, again taking another 45 seconds.

Disc users should make sure that there is a formatted Dos disc in drive one with at least 10 free sectors available for the AUTORUN.SYS file which will be created. This disc will become your new boot disc, so you should have already written the Dos files to it (Option H on the Dos 2.0 manual).

GRII has also been designed to work with most types of Dos with a COMMAND below \$3000 (such as DosXL or SpartaDos) so you may wish to alter the filename on line 3030 to suit your preferences. SpartaDos users, for example, could call it D:GRII.COM and access it only when required by typing GRII from the command processor.

From this point on you won't need the Basic program again and you should always use your new Get It Right II master disc or boot tape each time you power up the system. The disc version is automatic — simply turn the computer on with that disc in drive one and Dos and GRII will both load into memory.

Cassette users should place their new GRII II tape in the recorder, rewind it to the beginning and press Play. Then turn the computer on while holding down the Start button and press Return after the beep. Get It Right II will then load into memory and initialise itself.

After loading is complete you will see the message:

```
GET-IT-RIGHT-II - Loaded OK
```

followed by the READY prompt.

Obtaining a checksum from the new system couldn't be simpler, either. After you've typed in the Basic program you wish to check you should enter the command:

```
LIST "B:"
```

and the checksum will appear. To stop and start it simply use the Control+I keys in the same way as you would with any other listing — or hit the Break button to abort it completely.

You can alternatively specify output to a printer by entering:

```
LIST "G:P"
```

To show you the new type of checksum we have printed the ones for GRII along with the old version on Page 25 after the program listings.

You will notice that each line consists of three parts. The first is obviously the line number in question, which is followed by a three digit checksum value. This may consist of both numbers and letters, but don't worry — this time there won't be any digits to confuse with zeros, or indeed any other tricky digits such as one and the letter I, zero and the letter O or two and the letter Z.

The final digit on the line (enclosed in brackets) is a special cumulative check digit. This gives the running total of the checksums given so far in the listing. Thus you can look down the listing until you find a mismatch with this last digit to help you find an error.

Any lines following one containing an error will also have the wrong final

AUTUMN ACTION

from

Red Rat

Out NOW



SPEED RUN

Screen shot from 87 episode
available only 1988

Out NOW



Coming
SOON!



Little Devil



NIGHTMARES

All titles are for
Atari XL/XE
Disk £9.95
Tape £7.95



LEAPSTER



POTHOLE PANIC

Obtainable from your local software store or in case of difficulty direct from

Red Rat Software

17 PENNIE STREET, BRACKNORTH LE16 8PL, Leicestershire LE1 2J 6BT

SOFTWARE Solutions

Your programming problems solved by ANDRÉ WILLEY

I've had some fascinating letters this month — mostly from people with problems related to disc usage. Where have all the cassette users gone to — or don't you have any programming problems?

Anyway, let's kick off this time with a query from Michael Maszulis from Cardiff, who is running an 80000, with two US Double 1050 disc drives and a Panasonic printer. He writes:

I am currently developing a relatively small program which deals with files and disc utilisation. I need to delete some information from a file which was saved earlier. For example:

```
10 DIM A$(10)
20 OPEN "1,1,1,1,1,1,1,1,1,1,1,1"
30 PRINT "0010 0010 0010 0010 0010 0010 0010 0010 0010 0010 0010 0010"
40 IF NOT 1000 IS
50 PRINT 1,1,1,1
60 GOTO 40
70 CLOSE #1
```

After typing RUN I can enter various words such as MICHAEL, WILLEY or ATARI and they will be stored on the disc and the file closed.

Now, using:

```
OPEN #1:CLOSE "D:MICHAEL.DAT"
```

for both reading and writing at the same time, how can I erase specific information — such as the word WILLEY — from the file?

Also, could you tell me exactly how the NOTE and POINT commands are used for Random/Direct Access to files and sectors?

Well, Michael, I'm not really all that surprised that you are having trouble with the NOTE and POINT disc access commands, as they are rather poorly documented in the manual. One would expect NOTE to return a useful value such as an offset into the current file (as does SpartaDOS), but unfor-

tunately — due to the limitations of the Dos 2.0/2.5 file structure — it can only return a sector-by-sector reference.

To try to calculate such values from scratch would be almost impossible, but luckily for you there is an easy way around the problem.

What you need to do, in effect, is to replace a single text string within your file with one containing blanks. This means that each time the string is read back with the INPUT #1 statement you will receive a null string — a string of zero length such as the one you wanted for on line 40.

This will happen regardless of how many blanks there are because Atari Basic ignores any spaces following an entry — or in this case, ignores a complete entry composed entirely of spaces.

The solution could be a program along these lines:

```
10 DIM A$(20),B$(10),C$(10),D$(10)
20 OPEN "1" : "000 00 000011"
30 PRINT "1,1,1,1,1,1,1,1,1,1,1,1"
40 IF NOT 100
50 PRINT "1,1,1,1,1,1,1,1,1,1,1,1"
60 PRINT #1,00
70 PRINT "0001 10001 10001 0001"
80 PRINT 001,0
90 IF NOT 1000 THEN 1000 IS
100 PRINT 1,1,1,1,1,1,1,1,1,1,1,1
110 PRINT #1,SPACE$(10),A$(10)
120 GOTO 40
130 CLOSE #1 : 00
```

Let's take a look at how this works. Lines 10 and 20 set up the strings, including one which is filled with the same number of spaces as your maximum file entry length (in this case 20).

Then line 30 opens the file in update mode and line 40 sets a TRAP to line 500 to detect the end of the file. Incidentally, this would be more elegant if you used what is known as a wait entry or rogue terminator.

Put simply, you finish every file by writing a nonsequential entry — such as four asterisks — which you can look out for when reading the entries back in. This will tell you when there's no more data in the file.

Line 50 is the first clever bit. The NOTE command will return the current file pointer in terms of the sector number and the byte within that sector. Don't worry about the exact details because the numbers will only be used by the POINT command if we decide that we want to return to the same point in the file.

Lines 60 to 90 read in the entry from the disc and ask you if you want to delete it. If your reply is NO it will go back to line 50, get the new NOTE values for the next entry and do the whole thing again.

If, on the other hand, you enter YES at the prompt then the program continues to line 100 which will POINT the disc file pointer back to the previously NOTED position at the start of the unwanted entry.

Line 110 is probably the most complicated to understand, and it is this line which actually deletes the entry. As I have said, what we need to do is replace the current entry with blanks, but to do it character by character using the PUT command would take ages.

However, we already have the entry stored in memory as A\$, so therefore we know how many characters need replacing. In fact, all we need to do is print out the same number of spaces as there are characters in A\$. To do this, we use SPACE\$(LEN(A\$)) — which means the portion of SPACES from the beginning of the string for the same number of characters as there are in A\$.

Once this has been done we are back in position to read the next entry,



4 From Page 27

and the loop starts all over again at line 50.

This method has one small disadvantage — the entries are not actually deleted but rather overwritten. This means that the file will still take up the same amount of space on the disc even after you have deleted most of the entries.

To avoid this you could copy it, line-by-line, into a second file — missing out all the blank entries, of course. Simple when you know how, isn't it?

'Hidden' space on disc

G.A. Richardson of Watnall in the West Midlands has worked out the quickest way to get my attention...

I read with great interest your articles on Dos and the operating system in relation to the formatting and sector allocation of a Dos disc — however I am very confused on a related point and hope you can help.

I do indeed use Dos 2.0 a disc, but I also occasionally choose to use SpartaDos 2.0b, particularly for economy of disc use.

The query I have is with the amount of storage space available to fit on different discs. I usually use 48tpi discs, however I recently borrowed some 56tpi discs to determine whether there would be any advantages.

I formatted the 48tpi disc and tried to transfer a large number of files — to see how many it would take. After 47 files it gave me a "Disk Full" error roughly where I expected.

Then I did the same with the 56tpi disc which properly displayed over 1000 available sectors — and after transferring the same datafiles still showed over 700 available sectors.

However, this disc now won't permit any other files to be transferred — once again displaying a "Disk Full" error.

Would you please be kind enough to explain why the directory shows available space which apparently cannot be used, and also what possible advantage it can be to use 56tpi discs when they don't appear to store any more information than 48tpi ones? *

Your problem stems from a slight

misunderstanding over the way that discs work. The number of tracks per inch (tpi) specified on the label of a disc refers to the rated capacity of that disc — meaning that the suppliers won't guarantee it beyond that point.

In fact, all 5.25 inch computer discs are manufactured in exactly the same way — it is only in quality control afterwards that grading occurs. The more data that can be squeezed safely on to a disc the higher its rating will be.

A standard, single density, 810 or 1050 drive will use 48tpi discs quite happily — and certainly won't complain about using the higher quality 56tpi variety. However, it is only when you work in true double density (such as with a US Double!) that a 56tpi disc will show its worth. And even then, most good quality 48tpi discs will cope quite happily with double density usage.

However, these figures only refer to the theoretical capacity of the disc — how much you can actually place on it is up to you when you initially format it.

SpartaDos, as you know, is capable of accessing almost any type of disc drive, with many possible formats. It can handle either single sided or double sided drives, with either 35, 40, 71 or 90 tracks per disc.

Unfortunately, Atari 810 and 1050 drives are only capable of using one of those eight options — Single Sided, 40 track. To obtain any of the others would require the addition of a complex interface and a completely different drive mechanism.

Now prepare your brain for action — here come the numbers: The three densities available with an Atari drive are all variations within the 40 track single sided option: Standard density gives 18 sectors a track, each being 128 bytes long (that is 230 sectors or 29,760 bytes).

Enhanced (1050) density gives 28 similar sectors a track (1040 sectors or 133,120 bytes). Double density is slightly different in that it works with double-sized sectors, although it only uses 16 per track (giving 720 sectors again, but since each is 256 bytes long, a total capacity of 184,320 bytes).

SpartaDos obviously has no way of knowing when you select a drive how whether your hardware can fully support it.

For example, should you choose 80 tracks, double sided, using double density (256 byte) sectors, SpartaDos will assume you have access to the correct hardware and decide you have 160 tracks of 18 sectors on both sides of the disc. That's 2,880 sectors — or 373,824 bytes — which is four times greater than the double density disc that the drive will actually create.

Now you see the problem — so wonder SpartaDos returns there are more free sectors than there really are. In future, stick to 40 tracks, single sided and simply select Standard, Enhanced or Double Density modes.

As to what discs to use, 48tpi should be fine for most uses, but if you want to be doubly certain (no pun intended) use 56tpi for the higher densities.

Oh well, it looks like I've run out of space again. Don't forget to keep those letters coming. See you next month.

Are you having problems getting your programs to work? Write to Software Solutions, Atari User, Europa House, 68 Chester Road, Harlow Drive, Stouffville R3Y 5M1.

We will answer as many as we can within the pages of Atari User but, unfortunately we cannot give personal replies.

Glad tidings for 16k adventurers

by
Rouloc

I'm back again this month in one piece after my usual array of heroic deeds, saving maidens and slaying evil ministers and so on. There's plenty to chat about, so fetch your ale and pull a chair about the fire and listen very carefully.

A lot of fellow travellers will have 16k machines and feel rather left out of things as far as adventures are concerned. Well, old Rouloc as usual is the bearer of glad tidings. A company called AD400 has produced some rather nice little adventures that will happily run in 16k of memory.

AD400 has made full use of the features of the Atari and, by the judicious use of machine-code routines tucked away in odd corners, produced adventures which go no little way to matching the standards of those for the larger memory machines.

The games will also run in the bigger memory Atari 8 bit computers. In order to squeeze them into 16k, the games have only a small number of locations (rooms) but that deficiency is made up by the fact that there are puzzles and problems at almost every step of the way.

The adventures are based on the exploits of Special Agent AD400. The two titles so far available are Escape Part 1 and Escape Part 2.

In Part 1, you are incarcerated in a foreign prison and must make good your escape.

In Part 2, having successfully escaped from the iron confines of the prison, you must complete your bid for freedom using objects acquired in Part 1. Part 2 cannot be played unless you have obtained a special password given on completion of Part 1.

Two further adventures, Island Incident and Egyptian Escape, are likely to be ready by the time you read this. The games cost £3.75 each for tape and £4.75 for disc.

Latest news from Infocom is that Flinders Heart is its first venture into the world of romantic fiction. Grom, my well-eyed, seven-foot tall,

heavyweight wrestler filing clerk has always got his raddled nose stuck into the latest Mills and Boon pastiches so should be well pleased. Breathless poses and true love conquests all are his meat and drink (next to body slams and Boston crabs).

The game's main character is a young lady who has set sail on the high seas in the schooner Luffed Dear.

As well as losing her heart to handsome pirate captain Nicholas Jamison, our heroine faces less controllable events such as treacherous crocodiles, banner reefs and dangerous explosives.

The author, Amy Briggs, has used her research into romantic fiction, 17th century sailing vessels and the dress of that time to weave a vibrant tale of passion and adventure.

Drum is all eggs but since stories of sighting and mooning are not my favourite bedtime reading, I shall suspend judgement until I have played it. I hope to review it very soon.



Turn to Page 30 >

4 From Page 29

Hints & tips

STATIONFALL

- Have found an ostrich but need the ostrich skin? Look at the ceiling in the Fat store.
- Can't get through the wall at south connections? Have a look in the trash can in the painting plant.
- Documents not validated? Peek under the desk in the Controller's office.
- Village entry limit too cramped to fit of size? Take it to the laundry room and look it there.

THE FARM

- Dragon difficult to locate?

Draw his attention to something else by first looking at the stables, then pointing at them and finally shining the white at them.

- Snowman an obstacle? Melt him with the white.

LEATHER GODDESS/OLDFATHER

- Can't get past the ice beam on the canal? Seed the barge ahead to the boy dock then transport to it when you think it has arrived by using the black pipe down the well in the oriental gardens.
- Want to kiss the frog but can't? Put the clothes pile on your nose, put the beam on your lips, cover your ears with your hands and close your eyes. Now kiss the frog!



DEDICATED? So are we!

Don't get confused. **PAGE 5** is a totally independent magazine for Atari users that will compliment and expand your Atari world.

* Long program listings - not just games but also utilities, applications, education and more in both BASIC and machine code

* Programming articles, hints and tips

* In depth reviews - would you believe we once devoted four pages to one review! That's in depth!

* Comprehensive ST section

We also have a complete collection of PD software, books and accessories available to subscribers.

CHECK US OUT - you won't regret it.

C1 will get you a sample copy. ST will get you a year's worth (8 issues) and a lot more besides!

Overseas subscriptions £10.50 Air Mail Europe
£16.00 Air Mail or £10.50 Surface outside Europe
PAGE 5, P.O. BOX 84, STAFFORD, ST16 1DR



This month has 36 pages 48 pages!

**SUBSCRIPTION
HOTLINE**
0785 213928



NEW LOW PRICE ST!



£260 +VAT=£299

ONLY FROM SILICA

Atari 520ST is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk. It is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk.

FREE STARTER KIT - Only From Silica

Atari 520ST is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk. It is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk.

DEGRADED SERVICE - Only From Silica

Atari 520ST is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk. It is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk.

THE FULL STOCK RANGE - Only From Silica

Atari 520ST is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk. It is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk.

AFTER SALES SUPPORT - Only From Silica

Atari 520ST is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk. It is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk.

FREE CATALOGUE - Only From Silica

Atari 520ST is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk. It is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk.

FREE OVERNIGHT DELIVERY - From Silica

Atari 520ST is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk. It is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk.

FREE MATCHBOX - Only From Silica

Atari 520ST is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk. It is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk.

SO MUCH FOR SO LITTLE!

There is nothing that can compare with the absolute value for money offered by Atari's 520ST-FM. For only £260 (incl. VAT), you can purchase a powerful 520K RAM computer, with a 52 key keyboard (including numeric keypad), 5.25" interface, 520K, a palette of 12.5 colours, mouse control, 500K a 5.25" floppy disk drive. The 520ST-FM has a 520K RAM, mouse control, and comes with a mouse to allow you to place it straight into any domestic computer environment. The mouse (optional) is also built in to the keyboard, so there are no messy external boxes. You couldn't wish for a more compact, powerful and stylish unit. Atari 520 computers are now being established in the UK, there are already 200 software titles already available for a wide variety of applications and the list is growing all the time. And that's not all. When you buy Atari's new 520ST-FM for only £260 (incl. VAT) from Silica Group, you will get a lot more, including a FREE Atari 520 Starter kit worth over £100. Read the 520-1 520ST-FM 520K RAM manual on the 520, to see why you should buy your next high power, low price 520ST-FM from Silica. The 520-1 520K Atari 520 Starter kit (for further details of the range of Atari 520 computers and the FREE Atari 520 Starter kit) can be found in the Atari 520 Starter kit.

ATARI 520ST-FM NOW ONLY £260 (incl. VAT)
 £260 (incl. VAT) with 520K RAM & Mouse control (incl. VAT) Offer valid from 1/10/85 to 31/12/85

ATARI 520ST-F - NEW PRICE

Atari 520ST-F is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk. It is the most powerful and popular of all 8-bit computers. It has a 520K RAM, a 5.25" floppy disk drive, a keyboard, a mouse, and a 5.25" floppy disk.

MEGA STs NOW IN STOCK

Atari 520ST-F	520K RAM	5.25" floppy disk drive	520K
Atari 520ST-F	520K RAM	5.25" floppy disk drive	520K
Atari 520ST-F	520K RAM	5.25" floppy disk drive	520K
Atari 520ST-F	520K RAM	5.25" floppy disk drive	520K
Atari 520ST-F	520K RAM	5.25" floppy disk drive	520K
Atari 520ST-F	520K RAM	5.25" floppy disk drive	520K
Atari 520ST-F	520K RAM	5.25" floppy disk drive	520K
Atari 520ST-F	520K RAM	5.25" floppy disk drive	520K
Atari 520ST-F	520K RAM	5.25" floppy disk drive	520K
Atari 520ST-F	520K RAM	5.25" floppy disk drive	520K



SILICUP (a Mail Order) 01-828 1111
 17 Elm Street, Hemmings Road, Slough, Bucks, SL1 4LS

LONDON 01-880 4838
 1251 Haverhill Road, 207 Tottenham Court Rd, London, W1P 9HU

LOUGHBOROUGH 01-529 1234 ext 3000
 101-103, 104-106, 107-110, 111-114, 115-118, 119-122, 123-126, 127-130, 131-134, 135-138, 139-142, 143-146, 147-150, 151-154, 155-158, 159-162, 163-166, 167-170, 171-174, 175-178, 179-182, 183-186, 187-190, 191-194, 195-198, 199-202, 203-206, 207-210, 211-214, 215-218, 219-222, 223-226, 227-230, 231-234, 235-238, 239-242, 243-246, 247-250, 251-254, 255-258, 259-262, 263-266, 267-270, 271-274, 275-278, 279-282, 283-286, 287-290, 291-294, 295-298, 299-302, 303-306, 307-310, 311-314, 315-318, 319-322, 323-326, 327-330, 331-334, 335-338, 339-342, 343-346, 347-350, 351-354, 355-358, 359-362, 363-366, 367-370, 371-374, 375-378, 379-382, 383-386, 387-390, 391-394, 395-398, 399-402, 403-406, 407-410, 411-414, 415-418, 419-422, 423-426, 427-430, 431-434, 435-438, 439-442, 443-446, 447-450, 451-454, 455-458, 459-462, 463-466, 467-470, 471-474, 475-478, 479-482, 483-486, 487-490, 491-494, 495-498, 499-502, 503-506, 507-510, 511-514, 515-518, 519-522, 523-526, 527-530, 531-534, 535-538, 539-542, 543-546, 547-550, 551-554, 555-558, 559-562, 563-566, 567-570, 571-574, 575-578, 579-582, 583-586, 587-590, 591-594, 595-598, 599-602, 603-606, 607-610, 611-614, 615-618, 619-622, 623-626, 627-630, 631-634, 635-638, 639-642, 643-646, 647-650, 651-654, 655-658, 659-662, 663-666, 667-670, 671-674, 675-678, 679-682, 683-686, 687-690, 691-694, 695-698, 699-702, 703-706, 707-710, 711-714, 715-718, 719-722, 723-726, 727-730, 731-734, 735-738, 739-742, 743-746, 747-750, 751-754, 755-758, 759-762, 763-766, 767-770, 771-774, 775-778, 779-782, 783-786, 787-790, 791-794, 795-798, 799-802, 803-806, 807-810, 811-814, 815-818, 819-822, 823-826, 827-830, 831-834, 835-838, 839-842, 843-846, 847-850, 851-854, 855-858, 859-862, 863-866, 867-870, 871-874, 875-878, 879-882, 883-886, 887-890, 891-894, 895-898, 899-902, 903-906, 907-910, 911-914, 915-918, 919-922, 923-926, 927-930, 931-934, 935-938, 939-942, 943-946, 947-950, 951-954, 955-958, 959-962, 963-966, 967-970, 971-974, 975-978, 979-982, 983-986, 987-990, 991-994, 995-998, 999-1002, 1003-1006, 1007-1010, 1011-1014, 1015-1018, 1019-1022, 1023-1026, 1027-1030, 1031-1034, 1035-1038, 1039-1042, 1043-1046, 1047-1050, 1051-1054, 1055-1058, 1059-1062, 1063-1066, 1067-1070, 1071-1074, 1075-1078, 1079-1082, 1083-1086, 1087-1090, 1091-1094, 1095-1098, 1099-1102, 1103-1106, 1107-1110, 1111-1114, 1115-1118, 1119-1122, 1123-1126, 1127-1130, 1131-1134, 1135-1138, 1139-1142, 1143-1146, 1147-1150, 1151-1154, 1155-1158, 1159-1162, 1163-1166, 1167-1170, 1171-1174, 1175-1178, 1179-1182, 1183-1186, 1187-1190, 1191-1194, 1195-1198, 1199-1202, 1203-1206, 1207-1210, 1211-1214, 1215-1218, 1219-1222, 1223-1226, 1227-1230, 1231-1234, 1235-1238, 1239-1242, 1243-1246, 1247-1250, 1251-1254, 1255-1258, 1259-1262, 1263-1266, 1267-1270, 1271-1274, 1275-1278, 1279-1282, 1283-1286, 1287-1290, 1291-1294, 1295-1298, 1299-1302, 1303-1306, 1307-1310, 1311-1314, 1315-1318, 1319-1322, 1323-1326, 1327-1330, 1331-1334, 1335-1338, 1339-1342, 1343-1346, 1347-1350, 1351-1354, 1355-1358, 1359-1362, 1363-1366, 1367-1370, 1371-1374, 1375-1378, 1379-1382, 1383-1386, 1387-1390, 1391-1394, 1395-1398, 1399-1402, 1403-1406, 1407-1410, 1411-1414, 1415-1418, 1419-1422, 1423-1426, 1427-1430, 1431-1434, 1435-1438, 1439-1442, 1443-1446, 1447-1450, 1451-1454, 1455-1458, 1459-1462, 1463-1466, 1467-1470, 1471-1474, 1475-1478, 1479-1482, 1483-1486, 1487-1490, 1491-1494, 1495-1498, 1499-1502, 1503-1506, 1507-1510, 1511-1514, 1515-1518, 1519-1522, 1523-1526, 1527-1530, 1531-1534, 1535-1538, 1539-1542, 1543-1546, 1547-1550, 1551-1554, 1555-1558, 1559-1562, 1563-1566, 1567-1570, 1571-1574, 1575-1578, 1579-1582, 1583-1586, 1587-1590, 1591-1594, 1595-1598, 1599-1602, 1603-1606, 1607-1610, 1611-1614, 1615-1618, 1619-1622, 1623-1626, 1627-1630, 1631-1634, 1635-1638, 1639-1642, 1643-1646, 1647-1650, 1651-1654, 1655-1658, 1659-1662, 1663-1666, 1667-1670, 1671-1674, 1675-1678, 1679-1682, 1683-1686, 1687-1690, 1691-1694, 1695-1698, 1699-1702, 1703-1706, 1707-1710, 1711-1714, 1715-1718, 1719-1722, 1723-1726, 1727-1730, 1731-1734, 1735-1738, 1739-1742, 1743-1746, 1747-1750, 1751-1754, 1755-1758, 1759-1762, 1763-1766, 1767-1770, 1771-1774, 1775-1778, 1779-1782, 1783-1786, 1787-1790, 1791-1794, 1795-1798, 1799-1802, 1803-1806, 1807-1810, 1811-1814, 1815-1818, 1819-1822, 1823-1826, 1827-1830, 1831-1834, 1835-1838, 1839-1842, 1843-1846, 1847-1850, 1851-1854, 1855-1858, 1859-1862, 1863-1866, 1867-1870, 1871-1874, 1875-1878, 1879-1882, 1883-1886, 1887-1890, 1891-1894, 1895-1898, 1899-1902, 1903-1906, 1907-1910, 1911-1914, 1915-1918, 1919-1922, 1923-1926, 1927-1930, 1931-1934, 1935-1938, 1939-1942, 1943-1946, 1947-1950, 1951-1954, 1955-1958, 1959-1962, 1963-1966, 1967-1970, 1971-1974, 1975-1978, 1979-1982, 1983-1986, 1987-1990, 1991-1994, 1995-1998, 1999-2002, 2003-2006, 2007-2010, 2011-2014, 2015-2018, 2019-2022, 2023-2026, 2027-2030, 2031-2034, 2035-2038, 2039-2042, 2043-2046, 2047-2050, 2051-2054, 2055-2058, 2059-2062, 2063-2066, 2067-2070, 2071-2074, 2075-2078, 2079-2082, 2083-2086, 2087-2090, 2091-2094, 2095-2098, 2099-2102, 2103-2106, 2107-2110, 2111-2114, 2115-2118, 2119-2122, 2123-2126, 2127-2130, 2131-2134, 2135-2138, 2139-2142, 2143-2146, 2147-2150, 2151-2154, 2155-2158, 2159-2162, 2163-2166, 2167-2170, 2171-2174, 2175-2178, 2179-2182, 2183-2186, 2187-2190, 2191-2194, 2195-2198, 2199-2202, 2203-2206, 2207-2210, 2211-2214, 2215-2218, 2219-2222, 2223-2226, 2227-2230, 2231-2234, 2235-2238, 2239-2242, 2243-2246, 2247-2250, 2251-2254, 2255-2258, 2259-2262, 2263-2266, 2267-2270, 2271-2274, 2275-2278, 2279-2282, 2283-2286, 2287-2290, 2291-2294, 2295-2298, 2299-2302, 2303-2306, 2307-2310, 2311-2314, 2315-2318, 2319-2322, 2323-2326, 2327-2330, 2331-2334, 2335-2338, 2339-2342, 2343-2346, 2347-2350, 2351-2354, 2355-2358, 2359-2362, 2363-2366, 2367-2370, 2371-2374, 2375-2378, 2379-2382, 2383-2386, 2387-2390, 2391-2394, 2395-2398, 2399-2402, 2403-2406, 2407-2410, 2411-2414, 2415-2418, 2419-2422, 2423-2426, 2427-2430, 2431-2434, 2435-2438, 2439-2442, 2443-2446, 2447-2450, 2451-2454, 2455-2458, 2459-2462, 2463-2466, 2467-2470, 2471-2474, 2475-2478, 2479-2482, 2483-2486, 2487-2490, 2491-2494, 2495-2498, 2499-2502, 2503-2506, 2507-2510, 2511-2514, 2515-2518, 2519-2522, 2523-2526, 2527-2530, 2531-2534, 2535-2538, 2539-2542, 2543-2546, 2547-2550, 2551-2554, 2555-2558, 2559-2562, 2563-2566, 2567-2570, 2571-2574, 2575-2578, 2579-2582, 2583-2586, 2587-2590, 2591-2594, 2595-2598, 2599-2602, 2603-2606, 2607-2610, 2611-2614, 2615-2618, 2619-2622, 2623-2626, 2627-2630, 2631-2634, 2635-2638, 2639-2642, 2643-2646, 2647-2650, 2651-2654, 2655-2658, 2659-2662, 2663-2666, 2667-2670, 2671-2674, 2675-2678, 2679-2682, 2683-2686, 2687-2690, 2691-2694, 2695-2698, 2699-2702, 2703-2706, 2707-2710, 2711-2714, 2715-2718, 2719-2722, 2723-2726, 2727-2730, 2731-2734, 2735-2738, 2739-2742, 2743-2746, 2747-2750, 2751-2754, 2755-2758, 2759-2762, 2763-2766, 2767-2770, 2771-2774, 2775-2778, 2779-2782, 2783-2786, 2787-2790, 2791-2794, 2795-2798, 2799-2802, 2803-2806, 2807-2810, 2811-2814, 2815-2818, 2819-2822, 2823-2826, 2827-2830, 2831-2834, 2835-2838, 2839-2842, 2843-2846, 2847-2850, 2851-2854, 2855-2858, 2859-2862, 2863-2866, 2867-2870, 2871-2874, 2875-2878, 2879-2882, 2883-2886, 2887-2890, 2891-2894, 2895-2898, 2899-2902, 2903-2906, 2907-2910, 2911-2914, 2915-2918, 2919-2922, 2923-2926, 2927-2930, 2931-2934, 2935-2938, 2939-2942, 2943-2946, 2947-2950, 2951-2954, 2955-2958, 2959-2962, 2963-2966, 2967-2970, 2971-2974, 2975-2978, 2979-2982, 2983-2986, 2987-2990, 2991-2994, 2995-2998, 2999-3002, 3003-3006, 3007-3010, 3011-3014, 3015-3018, 3019-3022, 3023-3026, 3027-3030, 3031-3034, 3035-3038, 3039-3042, 3043-3046, 3047-3050, 3051-3054, 3055-3058, 3059-3062, 3063-3066, 3067-3070, 3071-3074, 3075-3078, 3079-3082, 3083-3086, 3087-3090, 3091-3094, 3095-3098, 3099-3102, 3103-3106, 3107-3110, 3111-3114, 3115-3118, 3119-3122, 3123-3126, 3127-3130, 3131-3134, 3135-3138, 3139-3142, 3143-3146, 3147-3150, 3151-3154, 3155-3158, 3159-3162, 3163-3166, 3167-3170, 3171-3174, 3175-3178, 3179-3182, 3183-3186, 3187-3190, 3191-3194, 3195-3198, 3199-3202, 3203-3206, 3207-3210, 3211-3214, 3215-3218, 3219-3222, 3223-3226, 3227-3230, 3231-3234, 3235-3238, 3239-3242, 3243-3246, 3247-3250, 3251-3254, 3255-3258, 3259-3262, 3263-3266, 3267-3270, 3271-3274, 3275-3278, 3279-3282, 3283-3286, 3287-3290, 3291-3294, 3295-3298, 3299-3302, 3303-3306, 3307-3310, 3311-3314, 3315-3318, 3319-3322, 3323-3326, 3327-3330, 3331-3334, 3335-3338, 3339-3342, 3343-3346, 3347-3350, 3351-3354, 3355-3358, 3359-3362, 3363-3366, 3367-3370, 3371-3374, 3375-3378, 3379-3382, 3383-3386, 3387-3390, 3391-3394, 3395-3398, 3399-3402, 3403-3406, 3407-3410, 3411-3414, 3415-3418, 3419-3422, 3423-3426, 3427-3430, 3431-3434, 3435-3438, 3439-3442, 3443-3446, 3447-3450, 3451-3454, 3455-3458, 3459-3462, 3463-3466, 3467-3470, 3471-3474, 3475-3478, 3479-3482, 3483-3486, 3487-3490, 3491-3494, 3495-3498, 3499-3502, 3503-3506, 3507-3510, 3511-3514, 3515-3518, 3519-3522, 3523-3526, 3527-3530, 3531-3534, 3535-3538, 3539-3542,

THE

**TRAVELLING
CIRCUS**

THAT TIME FORGOT AC.



Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

In the wings

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Standing room only

Platform

Platform

Under the canopy

Performance ring

In the wings

Harry's den



Platform



Proprietor's parlour

Ward's half of the study

Earl's half of the study

Military

Platform

Platform

Platform

Platform

Platform

GREEDY GUNTHER

By Ian Flockhart

GUNTHER's rich uncle, Scrooge, has just died leaving his vast fortune to be split between his nephews. But Gunther is not happy to have only a share — he wants it all. So making his way to his uncle's mansion he plans to grab all the money before it's all cleared out.

Type the game in and use the Gnt to flight checksums to ensure that you have made no errors. As you can see, from lines 2800 onwards the game screens are defined in a way that makes them very easy to change, so you can easily invent your own to add an extra challenge to the game.

You'll find details of the numeric data lines in the program breakdown, and Table 1 shows the keys needed to obtain the graphics characters. Run the program and control Gunther's direction of movement using joystick or keyboard.

Found coins are scattered all over the floor, but the real money comes in gold bags, each containing 100 gold coins. Collect enough of these before the time runs out and you receive a bonus and move to the next screen.

Unfortunately, Uncle Scrooge was rather security conscious and has left death traps lying around to catch burglars. You must also be careful to avoid Freddie the freak, a novel guard dog that Uncle Scrooge acquired cheaply from his old friend Doctor Steinfranken. That being said, the object of the game is to collect as much money as possible — so stay alert and be greedy!



Character	How obtained	Represents
█	Income = Control + E	Brick wall
█	Income = Shift + I	Death trap
█	Control + E	Coins

Table 1. Characters in the DATA statements

CONTROLS	
Joystick:	Plugged in port 1 (line 30) (see 1)
Keyboard:	Z Left X Right K Up M Down Space Start game

Program Breakdown.

200	Reads joystick or looks at keyboard, then moves Gunther
300	Moves Freddie
400	Prints bags of gold on screen
500	Sets collision detection flags and updates the score
600	Prints money, time and so on
700	Completed screen routine
800	Lost life routine
1000	Game over routine
1200 - 1600	Sound effects routines
1800	Bonus points routine
2000	Draws the title screen
2500	Sets up variables
2600	Defines characters
3000 - 4400	Draws game screens. The individual lines of numeric data (2800, 3000, 4000, 4200 and 4400) following every 20 lines of screen data contain the values for XP, YP, XPM, YPM, PVD, XD, YD, XGM and YGM respectively. The use of these variables can be found in the variable list.

WHEN the press release announcing the arrival of the Precision 4010 dot matrix printer proclaimed that it had four print heads, no one in the office believed it.

The printer itself arrived a week later and sure enough, there were four print heads mounted horizontally in line.

The theory is simple: if one print head travelling over 80 columns can produce 120 characters per second (cps), four heads travelling over 20 columns each will print at 480 cps.

To give you an idea of how fast 480 cps is, a 1000 word document which occupies about 1/3 of ram will take 20 seconds to print out in draft mode. In near letter quality (NLQ) mode the print time is just under three minutes while a screen dump takes just under one minute.

As you can probably imagine, four times the noise is also generated, but the 4010 has a very effective top cover which reduces the decibels to an acceptable level.

The design seems to have been very well thought out. There is the usual bank of DIP switches for setting various modes — such as carriage return with or without line feed, character sets, line spacing and so on.

Unlike most printers these are not lashed away at the rear of the case, they are on the front panel under a removable lid — and they can be set with human fingers not microscopic pin points. On the underside of the lid is a list of the switches' functions and how they were set at the factory.

NLQ or draft mode, on or off line, form and line feed are accessed by push buttons on the main panel. LEDs indicate power status, NLQ mode, paper out and ready.

The 4010 operates in IBM and Epson modes — selected by a switch. Although IBM mode won't be of much interest to Atari owners, if you have been using an IBM printer and all your programs are configured to output to that machine, it means that you can plug in and go without having to load in new printer drivers.

Epson mode has all the facilities you would expect — normal Ascii, international characters and italics are all available in draft or NLQ mode.

Both modes have pins and elite typelikes, condensed and double width printing modes and superscript or subscript facilities. All these options are software selectable by sending the appropriate escape codes.

On the negative side there is very little to complain about — the only problems we experienced were caused by the multi-strike carbon ribbon. When we first set up the printer, the ribbon was prone to jamming

Four heads are better than one



PETER HARTLEY speeds up his printing helped by the latest technology

as the thin carrier film would stick between the pinch rollers.

This problem was soon solved with the aid of a jeweller's screwdriver. The other problem was much more serious.

Using the screen dumps caused me to join the Black Hand gang. The carbon 'ink' didn't want to stay on the paper, it migrated as to my fingers, the printer case, the computer keyboard and various parts of my body.

Worse still, it smudged on the paper very easily. This resulted in more than one dump having to be redone. There doesn't seem to be much point in having a printer working at four times the speed if you have to use four times as much paper!

To be absolutely fair, we use a high quality paper with a very hard surface. The normal quality of fanfold paper has a more fibrous surface and may retain the carbon to a much higher degree. The option of a standard fabric ribbon would be a welcome accessory in this office.

With the exception of the ribbon problems, the printer performed exceptionally well over the review period.

The manual is supplied with the 4010 in very comprehensive. However, as it's printed in Japan, where the printer is made, there are a few examples of that special blend of

Japanese/English which we have all come to know and love.

An example from page 66 reads "Beside of the buffer conditions in paragraph (3), in case of printer status error (in such the case of paper out) occurs, the flag is set also."

Regardless of the above, there is more than enough information provided to allow you to get the most from your new printer. Items covered range from technical specifications, through installation procedures, software switches and escape codes to complete lists of available characters in both IBM and Epson modes.

For all the high technology, the cost of the 4010 is a very reasonable £224 — including Vat. Reliability should be high because each head is doing only a quarter of the work.

The specifications reveal that expected head life is 200 million characters and average output before failure is 50 million lines — although the printer head and ribbon drive unit (which must be the hardest working component), are excluded from this figure.

Printer: Precision 4010 printer
Price: £224.25
Supplier: Precision Software, 6 Park
Terrace, Worcester Park, Surrey, KT24
5JZ
Tel: 01 330 7180

ATARI USER Classifieds

Has upgrading your computer given you hardware you no longer need? Or have changing interests left you with unwanted software? Then **THIS** is the place to advertise your surplus items. *Atari User* readers are always on the lookout for a bargain and this is the first place they look!

An added bonus!

Your advert will also be automatically displayed on *AtariLink*, the electronic mail service operated in association with *Telecom Gold*. This means it will be seen by thousands of computer enthusiasts who can send an instant response.

● Atari 1300e, disc drive, printer cassette deck, software, books. Tel: Nigel 0622 48889 for more details and arrange a demo.

● Wanted: Centronics interface for 800XL. Tel: 0382 48478 after 5pm.
● Atari 800XL, 1050 drive, 1029 printer all for £350 cash no offers. Tel: Leeds 0532 491237 ask for Ken.

● I'm going to university have unused Atari 800XL, 1050 drive, 1029 printer, 410 recorder, joysticks, cartridges, 50+ software titles £250. Tel: Colchester 0206 573654.

● Brother M1069 printer and Atari interface for sale. Also eight ribbons,

roll paper holder and roll paper. All for £90. Tel: Farnham 02621 713275.

● Mapping the Atari (revised) teaching lang for beginners, £502 mic for separately price negotiable. Tel: Farnham (Hants) 230087.

● Stuck on your favourite game? We can supply hints, tips and maps. Send s.a.s. To: Brockford Hill, 26 Tremaine Grove, Hemel Hempstead, Herts for more details.

● Atari 800XL 1010 and 1050 disc drive + software £200. Tel: Livingston 0688 30794.

● Atari 800XL wanted due to desperation. S C Robins, 48 Chesham

Classified advertisements will be accepted under the following conditions:

- This service is **EXCLUSIVELY** for the use of private readers. No trade ads will be allowed.
- To avoid encouraging software piracy, all ads will be carefully vetted before they are accepted.
- Ads can only be accepted on this form (or a photocopy of it).
- There is no maximum to the number of words you include in your ad. If there is insufficient room on the form, continue on a separate sheet of paper.
- The cost is 20p per word, with a minimum of 10 words.
- We **GUARANTEE** your ad will appear in the December issue (on sale November 26) providing it is received by October 25.

Mount, Harrogate, HG1 1DL.

● 1027 printer £90, software on discs and cassettes all as new. Tel: 0266 418688.

● Living Daylights, Inner Karate, Artkanoid, Gaultier, Phantom, Spindizzy, ElectroGlide, Trail Blazer, Starquake, Spy v Spy2, Green Beret, Handball, Mercenary, Compendium, Dropzone, 16 budget worth £190, sell £90. Tel: 041 772 8532.

● 1010 recorder and Atari french course £20. Original disc software for sale, prices from £5. Tel: Brentwood 216112.

● Original cassettes software for sale, many old time classics, s.a.s. list

to Greenward, Rowfield Lane, Felbridge, East Grinstead, Sussex, RH19 2NY.

● For sale Atariwriter disc plus £22 worth of games on cassette for £30. Tel: 0858 724417 after 5pm ask for Brian.

● Brand new MP166 rgb printer, interface, Acwriter+, cost £270, sensible offers. Tel: Stawem (Ponemouth) 823880.

● 1300e and handbook new boxed unwanted gift £85. Tel: 01 504 7862.

● Cheap slice games, word processors, utilities, tapes, discs available due to upgrade, s.a.s. for list - Coley, Station Farm, Elmham, Dereham, Norfolk.

Fill in now for the next issue

I certify that any software offered for sale is original and not a copy.
Signed: _____

Name: _____
Address: _____

Check enclosed for £: _____

The Atari 8 bit home computers have been around for a long time and their rugged design makes them still one of the best, if not the best in my books. Internally their electronics has kept them at the top of a fluctuating market while lesser machines have vanished into total obscurity.

Many hardware add-ons have come and gone, but now Computerhouse have come up with one of the best internal modifications to an Atari 1 have ever seen.

One of the features of more powerful minis is that of the desktop, which allows you a multitude of different functions while running other software.

Now this is available to Atari 8 bit owners by installing the OS controller card. The package comes complete with a plug-in board, a master disc of desktop utilities and a well-written manual.

The board is very compact but does require a fair amount of work to fit it. I would recommend that anyone thinking of buying a board sends their computer to Computerhouse who offer to fit it free.

Fitting involves removing the motherboard and desoldering two ICs. This is not a job for a novice, as you can cause a lot of damage if you haven't got the proper tools and are not experienced in desoldering computer boards.

The chips you remove plug into the new board and so allow you control over the operating system. You then solder two sockets in their place and plug the board into one and attach a custom link lead to the other.

You then solder a readwrite fly lead to a leg of the 6529 PR chip before reassembling the micros.

The board has six switches that must be positioned outside the micros, so when you assemble it you will have to have a think about where they should go.

For simplicity I left the lid off my computer. Once installed, you can use the switches to affect the way that it works. The settings are shown in Figure 1.

Let's look at their functions and the way they affect the board's features in more detail. The Desktop protects the

Plug in your desktop kit

Neil Fawcett finds an add-on which gives more power to his 130XE

card from being re-programmed by a program as it is loading. This switch should normally be set to off for most uses of the card.

Desktop ram mode is included for anyone who wishes to write their own utilities via a programming language such as MAC/68 Macro Assembler. The manual provided provides a full explanation of how to do this.

Desktop switch alters the various utilities and system parameters when desktop software has been loaded into the system. Basic switch is self explanatory but a useful piece of information to know at this point is that some of the 6508 20 pin custom Atari ICs have a bug, so if you get garbage on the screen when you have selected Basic off then you need a new bug-free chip or don't use this option.

Now on to describing the desktop features that come on the master disc. When you boot up the first menu you are presented with six features as shown below and each will bring up another menu from which different options can be chosen.

You can alter the system character

set with the choice of 16 different sets. You can also alter a variety of system parameters including auto-start, key disk, fast cursor and cassette load rates.

The Super Dump II routine will dump the entire contents of memory to disc. It's also possible to convert your existing multi-boot menus to a desktop resident menu or save the computer's OS to disc to create a free emulator, or upgrade custom roms to work from the desktop.

For the one of the most useful and fun features of the board is the printer dumper. It creates an A4 sized dump and you have the option of selecting your own shades to represent one of the five primary colours.

There are three options: Draft, SHD1 and SHD2. SHD1 is a bit image equivalent of HLD and gives a very high quality printout on machines capable of 216m line feed. These features work on all Epson compatible dot matrix printers and are very easy to use. It is important to have the desktop switched off.

You can analyse the contents of a

Desktop control	Basic control
A Desktop ram	1 Basic disabled
B Desktop ram mode	2 Basic enabled
C Desktop on	
D Desktop off	

Figure 1: The switch settings



Options from the main menu



Screen dump from Typewriter Planner

disk and dump the results to a printer. There is also the format option that will initialise your disks to single density. Once you have configured the OS parameters you can create a boot disc which you can load everywhere you require these settings.

It is possible to initiate a callstart from the main menu, and this allows you to load software into the system with the desktop software resident.

These are the features that you get when you first buy the board, but one of the great things about it is the fact that it is software controlled and so is only limited by the quality of programs available for it. This means that although the card is a hardware modification it is extremely expandable and very easy to use.

In the parcel that I received to review were two library discs – the 1028 Snapshot printer dumpers and the 8HD professional print link package.

The former is similar to the snapshot routine, but is designed for the Atari 1024 printer – which is so often left out in the cold. Computer-

house says that the other library utility gives a printout on an Epson 8 pin dot matrix printer with reverse line feed that can only be rivalled by a laser printer.

I tested the printout quality and it is superb. Realising that it needs a laser printer is a little naughty, but it is certainly one of the best dumper routines I have seen on an 8 pin Epson.

There are three variations of graphics converters on the disc. The first is for use with Typewriter desktop publishing software packages, the second is for use with Lotus/Pixate software and the final one is designed to for use with Mini Office II to give enhanced quality on text printouts.

It is important to note that the library discs do not come in the original package and must be bought off Computerhouse for £12.95 for the Snapshot and £14.95 for the print link package.

I have seen just about every add-on for the Atari 8 bit computers on the English and American markets and must rate this one a winner. It is very

well documented and easy to use.

At the moment Computerhouse is designing more library discs. The first will be a printer toolkit which will use the 13000's 128k memory as a printer buffer, a colour screen dumper for the Epson 30-80 printer and a variable size screen dumper that will allow you to print where you want on the paper.

There will also be a general purpose disc that will have all sorts of interesting utilities like a clock, a note pad, calendar and appointment menu and a redirector that will allow you to play around with your hardware and send screen data to a printer or a ramdisk. So if you feel like turning your poor old computer into a new super computer then this is the product for you.

Product: OS Controller Board
Price: £89.95 (R0804) £79.95 (R0805)
£59.95 (optional OS patch pack)
Supplier: Computerhouse, 74 Abchurch Lane, London EC4N 3JF
Tel: 01-251 1230



Confirmation of new character set installed



Screen dump from an AtariMusic picture



Screen dump from an AtariMusic picture

5 LINERS

COPY 5 DOUBLE DENSITY DISC DUPLICATOR

from Simon Reason

This program backs up a double-density disc — and in only five lines. First of all format the destination disc to double density, and then run this program. Insert the required disc when the prompt asks for it and press Return.

The program will back up a DD02 2 formatted disc, as it ignores file names and copies sector by sector. It is not designed to copy bad sectors and so it will not copy protected software.

The program works by using a short machine code routine (5 bytes) to call part of the disc operating system.

```
1 000 0020700,0020,0020710,110
2 00000 00 000000 0000 00000
3 000 000 00 00000 00000 00000
4 0 00000 00000,00000 00000 00000
5 0000000000000000 0000 000000000000
6 0000000000000000 0000 000000000000
7 0000000000000000 0000 000000000000
8 0000000000000000 0000 000000000000
9 0000000000000000 0000 000000000000
10 0000000000000000 0000 000000000000
```

Get it right! II

1 000 001
2 001 001
3 002 001
4 003 001
5 004 001

MINI-DOS

from T. Mahon

This performs six of the functions of DOS 2.0 saving you from going to Dos each time you want to perform a simple Dos function. If DUP.DYS is removed and Minidos put in its place it saves 30 sectors on the disc. Some lines may need abbreviations in order to fit them in. When typing the question marks, in line 10 type the inverted commas directly after. Use D, instead of GOTO and GOSU, instead of GOSUB. The routine gives you the following functions:

D: Displays directory of drive specified and must be followed by a number from one to eight.

Delete: Deletes files.

Lock: Locks files.

Unlock: Unlocks files.

Rename: When the program prompts for a filename type D, followed by the file you wish to rename followed by a comma and finally the new name of the file. For example:

D:MINIDOS.SLF,MINIDOS

Format: With DOS 2.0 there are two types of format and both of these have been included in Minidos. To stop you from accidentally erasing your discs, Control must be pressed with S or F which specifies SINGLE or BALANCED density.

PROGRAM BREAKDOWN

- 10 Displays the menu and goes to line 50 to wait for a keypress.
- 20 Checks to see if the key was a number, and displays a directory.
- 30 Works out the HDD commands, if the command is higher than 252 it executes 4.
- 40 Asks for filename and uses the same in the HDD command.
- 50 Waits for keypress.

```
10 000 000 000000 000000 000000 000000
11 0000 0000000000000000 000000 000000
12 0000 0000000000000000 000000 000000
13 0000 0000000000000000 000000 000000
14 0000 0000000000000000 000000 000000
15 0000 0000000000000000 000000 000000
16 0000 0000000000000000 000000 000000
17 0000 0000000000000000 000000 000000
18 0000 0000000000000000 000000 000000
19 0000 0000000000000000 000000 000000
20 0000 0000000000000000 000000 000000
21 0000 0000000000000000 000000 000000
22 0000 0000000000000000 000000 000000
23 0000 0000000000000000 000000 000000
24 0000 0000000000000000 000000 000000
25 0000 0000000000000000 000000 000000
26 0000 0000000000000000 000000 000000
27 0000 0000000000000000 000000 000000
28 0000 0000000000000000 000000 000000
29 0000 0000000000000000 000000 000000
30 0000 0000000000000000 000000 000000
31 0000 0000000000000000 000000 000000
32 0000 0000000000000000 000000 000000
33 0000 0000000000000000 000000 000000
34 0000 0000000000000000 000000 000000
35 0000 0000000000000000 000000 000000
36 0000 0000000000000000 000000 000000
37 0000 0000000000000000 000000 000000
38 0000 0000000000000000 000000 000000
39 0000 0000000000000000 000000 000000
40 0000 0000000000000000 000000 000000
41 0000 0000000000000000 000000 000000
42 0000 0000000000000000 000000 000000
43 0000 0000000000000000 000000 000000
44 0000 0000000000000000 000000 000000
45 0000 0000000000000000 000000 000000
46 0000 0000000000000000 000000 000000
47 0000 0000000000000000 000000 000000
48 0000 0000000000000000 000000 000000
49 0000 0000000000000000 000000 000000
50 0000 0000000000000000 000000 000000
51 0000 0000000000000000 000000 000000
52 0000 0000000000000000 000000 000000
53 0000 0000000000000000 000000 000000
54 0000 0000000000000000 000000 000000
55 0000 0000000000000000 000000 000000
56 0000 0000000000000000 000000 000000
57 0000 0000000000000000 000000 000000
58 0000 0000000000000000 000000 000000
59 0000 0000000000000000 000000 000000
60 0000 0000000000000000 000000 000000
61 0000 0000000000000000 000000 000000
62 0000 0000000000000000 000000 000000
63 0000 0000000000000000 000000 000000
64 0000 0000000000000000 000000 000000
65 0000 0000000000000000 000000 000000
66 0000 0000000000000000 000000 000000
67 0000 0000000000000000 000000 000000
68 0000 0000000000000000 000000 000000
69 0000 0000000000000000 000000 000000
70 0000 0000000000000000 000000 000000
71 0000 0000000000000000 000000 000000
72 0000 0000000000000000 000000 000000
73 0000 0000000000000000 000000 000000
74 0000 0000000000000000 000000 000000
75 0000 0000000000000000 000000 000000
76 0000 0000000000000000 000000 000000
77 0000 0000000000000000 000000 000000
78 0000 0000000000000000 000000 000000
79 0000 0000000000000000 000000 000000
80 0000 0000000000000000 000000 000000
81 0000 0000000000000000 000000 000000
82 0000 0000000000000000 000000 000000
83 0000 0000000000000000 000000 000000
84 0000 0000000000000000 000000 000000
85 0000 0000000000000000 000000 000000
86 0000 0000000000000000 000000 000000
87 0000 0000000000000000 000000 000000
88 0000 0000000000000000 000000 000000
89 0000 0000000000000000 000000 000000
90 0000 0000000000000000 000000 000000
91 0000 0000000000000000 000000 000000
92 0000 0000000000000000 000000 000000
93 0000 0000000000000000 000000 000000
94 0000 0000000000000000 000000 000000
95 0000 0000000000000000 000000 000000
96 0000 0000000000000000 000000 000000
97 0000 0000000000000000 000000 000000
98 0000 0000000000000000 000000 000000
99 0000 0000000000000000 000000 000000
100 0000 0000000000000000 000000 000000
```

Get it right! II

10 000 000
20 000 000
30 000 000
40 000 000
50 000 000

PROGRAM BREAKDOWN

- 1 Initialization: Sets up the buffer space (20), reads in the machine code and converts the FOR...NEXT loops that jump to the subroutines.
- 2 Read source subroutines: Displays a prompt for the source disc to be put in drive #1, and then FORKS 770 with the READ command. It then uses another FOR...NEXT loop to fill up the buffer space, using 776 and 779 as the sector to be read, and 772 and 773 as the address of the buffer.
- 3 Write destination subroutines: Displays a prompt for the destination disc to be put in drive #1, then FORKS 770 with the WRITE command (20) and then FORKS 776 and 779 with the destination sector number, and 772 and 773 with the address from where the 128-byte sector will come from.

Get it right! II

1 000 001
2 001 001
3 002 001
4 003 001
5 004 001

Mini Office II



6 powerful home and business programs in just **ONE** package – at a price that simply can't be matched!

**Voted
Business Program of
the Year – 1988 AND 1989**
Home Computer World
**This package is
incredible value!**
*May 1988 Home
Computing Guide*

WORD PROCESSOR

Compose a letter, set the print-out options using embedded commands or menus, use the mail merge facility to produce personalized circulars – and more!

SPREADSHEET

Prepare budgets or tables, total columns or rows with ease, copy formulas absolutely or relatively, use a wide selection of mathematical and scientific functions, recalculate automatically – and more!

GRAPHICS

Enter data directly or load data from the spreadsheet, produce pie charts, display bar charts side by side or stacked, overlay line graphs – and more!

DATABASE

Build up a versatile card index, use the flexible print-out routines, do powerful multi-field sorting, perform all arithmetic functions, link with the word processor – and more!

COMMS MODULE

Using a modem you can access services such as MicroLink and order a wide range of goods from flowers to software, send electronic mail, telex and tele-messages in a flash – and more!

LABEL PRINTER

Design the layout of a label with the easy-to-use editor, select label size and sheet format, read in database files, print out in any quantity – and more!

ORDER FORM

Please send me Mini Office II for the Apple II/III/IIIx/IIcx (disk required), an 11" disc for \$19.95

I enclose cheque made payable to Database Software, or debit my Access/Visa card:

Exp. date _____

Signed _____

Name _____

Address _____

ORDER HOTLINE:
TEL: 061-699 0171

1240 PO, Database Software,
Europa House, 48 Chester Road,
Bland Green, Stockport SK7 9TJ

DATABASE SOFTWARE

Europa House, 48 Chester Road,
Bland Green, Stockport SK7 9TJ

4 from Page 47

have any useful PEEKS and POKEs we could pass on? For the time being here are a few that give interesting effects for you to play with:

PEEK 755.0
PEEK 755.1
PEEK 755.4
PEEK 755.5
PEEK 710.95
PEEK 711.55
PEEK 712.95

For more information read Mapping the Atari, written by Chabotek and published by Computer books.

Cricket on the 800XL

PLEASE could you let me know if any cricket games have been released for the Atari. I have a 800XL. — **B.E.B. Harding, Evesham, Worts.**

● To our knowledge no cricket games have been released for Atari 8 bit computers. Have any of our readers written one that we could publish in Atari User?

Run-Time Library

PLEASE had my Atari for four years now and I've done most of my programming in Basic, as I found machine code too complicated.

After reading your review of Action by GUS I decided to buy it. When it arrived I immediately plugged in the cartridge and turned through the manual for a program to try. I was very impressed with the speed the program ran.

Since then I have written a game, and a sprite designer and am currently writing a space trading game. The only problem is that my programs won't run without the Action cartridge plugged in.

You mentioned a Run-Time Library in your review

in this part of the Action toolkit? If not, could you please tell me where I could obtain the Run-Time Library (can)? — **Mark Stratford, Pitt, Ohio.**

● The Action toolkit and Run-Time Library are two separate packages.

The toolkit is a selection of useful programming routines to give features like floating point maths and clever mobile graphics.

The library program allows you to create a free standing, self contained file that will execute without the Action language cartridge. The packages cost about £29.95 each.

Interface needed

I AM an Atari 130XE owner and would like to know why so many games on the 8 bit Atari are only for 48K machines.

I know that the old 400880 machines only have 48K or less, but if the program makers could write software for 64K computers then my 39001 owners would have much more value for our money. The games could then have much better graphics than many have today.

The solution could be that Atari build a cartridge/

interface to give the old 400880 computers 64K of memory. And when the old machines are 64K then the program makers could do some software like Road Runner, Last Ninja and so on.

Are there any other readers who have the same thoughts as me? — **Michael Bjorkholm, Sweden.**

Using GAD pictures

AFTER recently buying Graphics Art Department I decided I would like to use some of my pictures in my own Basic programs. I noticed the Five Lines program to do this in the September issue of Atari User and typed it in.

Then I changed the filename to the name of the picture and tried to run it, but all I got was error 136. It seems to be that GAD and DDD 2 require different formatted discs. How do I save a GAD picture on to a DDD 2 formatted disc? — **Dave E., Brighton.**

● GAD loads and works using Dos 3.5. Either use dos 3.5 or transfer GAD picture files to Dos 3 using the utility that comes with Dos 3. Have any of our readers written a Five Lines to do the job more easily?

ATARI USER Mailbag

We welcome letters from readers — about your experiences using the Atari micros, about how you would like to pass on to other users ... and about what you would like to see in future issues.

The address to write to is:

**Mailbag Editor
Atari User
500 House
88 Chester Road
Hazel Grove
Stockport SK7 5NY**

International characters

ANYONE who has purchased Mail Office II will by now have discovered what an excellent package it is. The following information may assist users who haven't yet wanted out how to underline and use the international character set so you can write Dear André Willey and so on.

To underline set, use of the control strings, say **PC**, to **ZZZ**. This switches on the underlining and to turn it off set **P3** to **ZZZ**. To use the underlining feature put **P2** at the beginning of the text you wish to underline by pressing Control+2 and put **P3** at the end to switch this feature off.

International characters are obtained by using the Atari value in a control string starting with **ZZZ**. For example to get a dot the string code is **ZZZ.02**.

If you propose to use the international character set a lot it's worth making a French set, German set and so on and save a version of each. Also, do not overlook that you can use the selective search and replace to change any characters to if for any documents that have already been created. — **Mike Rocks, Durham City.**

Graphics dumps

I FOUND *Mega Office II* a very interesting and useful piece of software. Unfortunately it doesn't support my Atari 5010 printer/foam, and when I use the graphics module it isn't possible to send the screen display to the printer.

Do you know how I can make my printer dump the screens? — **Noel Faeschijn-Duyvick, Belgium.**

For printing that it does not support directly, *Mega Office II* allows you to save graphics screens to disc by selecting the Option icon and then Disc Save from the next menu.

The saved screen can then be dumped using any screen dumps.

Saving programs

POBASE could you tell me how to save programs on to tape, because when I type programs into my computer I would like to reprint them to play in the future.

Also could you tell me if you still copies of the games you print in Atari User and tell me how much you sell them for. — **Marvin Boyle, Stockton-on-Tees, Cleveland.**

Once you've typed your program in just type:

1111

Then to load the program enter:

1110

It's a good idea to save your work about every half hour. Then if anything goes wrong, such as a power cut, at least you can re-load the last saved version and carry on typing it in. We don't sell the games on disc each month, but you'll find an offer in this issue of *Atari User* for ten of the best games previously published.

Secret of the 1010 deck

MANY of your readers have reported problems they encountered while attempting to load tapes with the 1010 tape deck.

The secret to reliable operation is to clean not only the tape heads but also the capstan and pinchwheel.

To do this press play on the deck and use a cotton bud soaked with a suitable cleaner — I use RLS general cleaning fluid which is available from good dealers.

Other electrical cleaning sprays may be suitable, but check that they do not contain any lubricants. The heads can be cleaned with an up and down action of the bud.

Once you have cleaned the heads go to *Atari* and type POBASE 86026.02 to activate the tape transport motor.

The capstan is the vertical steel rod — and the pinch-wheel is the rubber wheel pressing against the capstan

— and to the right of the heads and both should be cleaned with the sprayed bud until the brown tape oxide has been removed.

Note that the bud will sometimes pick up a black deposit from the pinch-wheel even after it is clean. The cleaning will do much to restore reliable operation, whereas a fabric tape cleaner will only clean the heads.

If you are handy with a soldering iron you may like to try another fix, but this should only be tried if the deck is out of warranty.

Checkers both before of the case and inside all the connectors from the board before removing it from the base.

Locate resistors R111, R112, R113, R114, R115 and R150 (their numbers should be printed on the board), and replace them with resistors of the same value but of 1% tolerance.

Since these resistors control feedback loops in the FXK decoding filter, replacing them with more accurate values should improve performance in this vital area of the circuit.

I will also echo previous warnings about tampering with the head alignment, since this requires the use of a special tape and special equipment.

Other methods of alignment are made increasingly difficult by the appalling playback quality — particularly through the average TV speaker.

Finally, a word about the tape themselves. If it's poor economy to buy cheap tapes which will probably then refuse to load.

Also do not use chrome, pseudo-chrome or metal tapes which can destroy the tape heads over a period of time. — **Deryuk Croker, Watford, Herts.**

Machine code entry

I AM interested in programming in machine code and I'm willing to give it everything! But I have been told I will need an assembler and an editor. Please could you tell me how to obtain these, and any books that will be useful.

is this all I will need or am I skimming the surface? — **Peter Barry, Birkenhead, Merseyside.**

The easiest way for you to get into machine code programming on your Atari is to buy an Atari Assembler/Editor Cartridge. This plugs into your computer and screens with an easy to understand manual and

instruction card.

You will also need to obtain a few tutorial books — and watch future issues of *Atari User* for a new series on easy programming using machine code.

Rare cartridges

PLEASE can you tell me where I can get cartridges for my Atari 800X. I live in Devon and I have had the computer for nearly two years now and I still can't find cartridges around where I live. — **Simon Legg, Axminster, Devon.**

Unfortunately the supply of cartridges for Atari computers has dwindled

recently, but with the introduction of the new 800X games console there should be a new surge in cartridge-based software springing out.

Stuck with the keys

I BOUGHT a game for my Atari 800X, not realising it was keyboard control. Is there any way of typing in the commands for joystick control and if so would you please tell me? — **Benny Mitchell, Liverpool.**

Unfortunately games need writing specially to accept joysticks rather than the keyboard. It's unlikely that you could convert any game you have bought.

*Two discs crammed
with the most popular
programs from your
favourite magazine!*

These two exciting compilations bring together some of the very best listings from the pages of Atari User.

Whether you like games or prefer more serious pursuits there's something here for you - and you can also learn a great deal from examining and modifying the Basic listings.

Ten of the Best Games

- Chopper Rescue** - Take control of a helicopter to rescue lost soldiers.
- Car Battle** - Defeat Eternovik by negotiating the dangerous obstacles.
- Spaceman** - Fly your spaceship through the deadly caverns below the lunar surface.
- Massmurder** - Guide your murch recorder around the maze, avoiding its deadly inhabitants.
- Moneybags** - Grab up all the money but beware of the angry spiders.
- Frank the Fruit Fly** - Help Frank eat his favourite food in this platform game.
- Dark Dash** - Dash round and chase up all the darks before the steam hits the fans.
- Frogjump** - Dash the frog across the busy road in this casual arcade game.
- Doctor Bats** - Help the doctor build the new hospital but watch out for mad howlers.
- EMUL** the latest Get a Right program to help you correctly type in listings in Atari User.

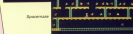
Remember that the game you liked best of all, *Flow*, in **BOUNDARY PLUS**, we've made it even better - with 500 exciting new screens to test your dexterity. Bounce up and down on the springy trampoline to hit the many targets while avoiding the balloons, (R) and (S) only.

Ten of the Best Utilities

- DiskError** - Make sense of those basic error numbers by turning them into words.
- Disksafe** - Modify those hidden sectors with this superb utility.
- Disksave** - Take a look at all the useful information stored on your disks.
- Dump 15** - Make prints of your favourite pictures on your Epson or IBM 1520 printer.
- AutShow** - Load your AtariSoft pictures and create your own fantastic artwork.
- AutoDirectory** - Gain instant access to disc directories without going to Dos.
- DisksTransfer** - Remember your Basic listings with the world's fastest program.
- Footprints** - Print out any magazine character set in full on an Epson printer.
- DisksEditor** - Manipulate disks with ease whether on disc, cassette or in memory.
- 80 Columns** - Generate a very impressive 80 column text display on your screen.
- EMUL** the latest Get a Right program to help you correctly type in listings in Atari User.



Frank the
Fruit Fly



Spaceman

ONLY **£4.95** each

... or just £3.95 each when you take out a new subscription to Atari User - or if you renew your existing subscription.

TO ORDER PLEASE USE THE FORM ON PAGE 51

Lose yourself in the magical world of Kerovnia!

This fascinating adventure features the most sophisticated parser around: You can type complex sentences and interact with the many characters, including some very intelligent animals.

This superb package includes a 44-page novel and a cryptic help section.

"The program took three man years of programming time to produce – and it shows. The Pawn is the stuff from which cults are made."

– Anthony Ginn, writing about the Atari ST version
in the May 1986 issue of the Atari User

SAVE UP TO £10



Suitable for	RRP	Special reader offer	YOU SAVE	Offer including subscription	YOU SAVE
Atari 800/130 with minimum 64K plus 1850 double density disc drive	£19.95	£14.95	£5	£21.95	£10

TO ORDER PLEASE USE THE FORM ON PAGE 51

SPECIAL FX

RICHARD VANNER concludes his series on amazing effects with a routine to plot your own software sprites

This month's Special FX gives you a routine that allows you to plot software sprites of any shape on to any graphics screen. The program itself is very complex so don't need to know how it works - just type it in and get objects moving round your screen.

Software sprites differ from hardware sprites in many ways. For example, they will interfere with the display but a hardware sprite won't. Hardware sprites also have independent colour registers whereas software sprites are limited to the playfield colours.

These points may lead you to wonder why we use hardware sprites at all! But the disadvantage of the hardware sprites is that there are only four available and each one can only be eight bits wide. In the case of a software sprite you can define any size and have as many as you wish.

Type in Listing 1 to see the software sprites in action. Listing 1 is the Assembler listing and this will be of interest to any machine code writer as it uses some well known techniques. Also note that the routine uses part of page six for variable storage, so watch out for memory conflicts.

Before you can adapt the routine to plot your own software sprites, you need to know how they work and how they will affect the screen display. The call from Basic is a USR command that sends the eight parameters shown in Table 1 to the machine code routine. It

takes the following format:

```
CALL ADDRESS,SPRTE,TYPE,  
WIDTH,HEIGHT,X,Y
```

These parameters may seem a little complex but each one is essential, so let's look at them in detail.

The first one is the start address of the routine. Listing 1 copies the code into the string CODES and because the routine is relocatable the string can be anywhere in memory and the code will still run without any conflict. If you do copy the code into a string you can find the first parameter by using the command ADDR(CODES).

The second parameter is the address of the sprite. This again could

be stored in a string or elsewhere, but you must know where it is.

Next is the number of bytes used in the current graphics mode. Table 2 gives you a cross reference if you are unsure of this.

The fourth parameter is the type flag. If set to 0 then the sprite will be plotted using the machine code OR instruction, otherwise a non-zero value will result in an XOR instruction being used.

The OR merges the sprite into the background whereas the XOR has other properties which allow the sprite to be plotted over a background, and then erased without affecting the background.

The width parameter comes next and this must be the number of bytes across that the sprite takes up. Height is the number of lines down the sprite.

The final two parameters are the X and Y values of the pixel position where the sprite will be plotted.

This is the end of the FX series. Now it's time to put the routines we've covered together and produce your own stunning FXs.

Graphics mode	Number of bytes per line
0	40
1	20
2	20
3	10
4	10
5	20
6	20
7	40
8	40
9	40
10	40
11	40
12	40

Table 2: Sprites used in graphics modes

ADDRESS	Address of the sprite plotting routine.
SPRITE	Address of the sprite to be plotted.
BYTES	Number of bytes across the screen.
TYPE	Type of plot output.
WIDTH	Width of the sprite.
HEIGHT	Height of the sprite.
X	X position to plot the sprite.
Y	Y position.

Table 1: The parameters passed to the routine

Listing 1: Basic program for FX.spr

```
1 000 *****
2 000 + SPRITE, TO AD +
3 000 + SPRITE, SPRITE +
4 000 + 0 +
5 000 + SPRITE, SPRITE +
6 000 *****
7 000 *****
8 000 *****
9 000 *****
10 *****
11 *****
12 *****
13 *****
14 *****
15 *****
16 *****
17 *****
18 *****
19 *****
20 *****
21 *****
22 *****
23 *****
24 *****
25 *****
26 *****
27 *****
28 *****
29 *****
30 *****
31 *****
32 *****
33 *****
34 *****
35 *****
36 *****
37 *****
38 *****
39 *****
40 *****
41 *****
42 *****
43 *****
44 *****
45 *****
46 *****
47 *****
48 *****
49 *****
50 *****
51 *****
52 *****
53 *****
54 *****
55 *****
56 *****
57 *****
58 *****
59 *****
60 *****
61 *****
62 *****
63 *****
64 *****
65 *****
66 *****
67 *****
68 *****
69 *****
70 *****
71 *****
72 *****
73 *****
74 *****
75 *****
76 *****
77 *****
78 *****
79 *****
80 *****
81 *****
82 *****
83 *****
84 *****
85 *****
86 *****
87 *****
88 *****
89 *****
90 *****
91 *****
92 *****
93 *****
94 *****
95 *****
96 *****
97 *****
98 *****
99 *****
100 *****
```

From the Page 200

File converter

MATTHEW DUNN shows how to use AtariWriter files in Mini Office II

UNTIL the advent of Mini Office II and its integrated package of software, I did all my word processing using AtariWriter. For very many obvious reasons — mail merge, 88 column preview, ease of use and so on — I wanted to use my old AtariWriter files with Mini Office II.

The Mini Office II word processor can read in documents created from AtariWriter, but unfortunately the format of the embedded commands is different. Faced with doing innumerable search and replace operations, I wrote this conversion program.

This utility will convert AtariWriter embedded commands to ones accepted for use with the Mini Office II word processor. Some of the commands are simple code changes, though others such as underlining require more complex handling. Table 1 shows how the commands map on to each other and the program line that handles the conversion.

Let's take a look at the conversion process. Before anything can be done a character must be brought from the source file. The program first tests to see if it is a text character and if it is it is put straight into the output file.

If it is not, it is tested for being a reverse video character. In AtariWriter this means that the character is to be underlined. Mini Office II handles this using the more flexible printer macros so the program will place the code for printer macro 3 at the start of an underlined section and printer macro 4 at the end. You will need to enter the codes to turn underlining on, and off against the appropriate macro strings. A similar technique is used for wide print and sub/superscript conversion.

If the character read in has a value between 1 and 26 it represents one of the AtariWriter embedded commands. Line 280 converts the character code into a line number which references the appropriate routine. Again Table 1 can be used to see how each character code maps on to the Mini Office II embedded command.

Some of the commands, such as left, top or bottom margin have direct equivalents which just require the appropriate embedded command to be output.

Some of them have a number following their value following them, so the routine at line 500 reads in (if any) and stores the value in the variable "NUM". For Mini Office II the number following the embedded command must be in reverse video.

Each embedded command that has a number after it stored in NUM is converted to reverse video by the routine starting at line 3100 before being output. The header and footer commands also use this routine to

convert the header/footer text into reverse video.

The embedded commands in AtariWriter which refer to vertical spacing are in half lines. Since Mini Office II deals with full lines, all the vertical parameters must be divided by two before being output.

The right margin may also require some further processing since the Mini Office II equivalent is line length. This is handled by subtracting the left margin from the right. The value of the right margin is held in the variable RM and is set to a default value on line 28 of the routine.

Paragraphs are converted into the appropriate number of hard returns and spaces. For this to be possible the paragraph settings in AtariWriter must be stored until the paragraph character is encountered.

INDT holds the numbers of spaces to indent a paragraph by and defaults to 5. The variable PS holds the paragraph spacing. When the paragraph code is used the program outputs PS blank lines and INDT spaces before the next character.

Finally, if there are any special printer codes used these are always replaced by the printer macro P7, if the special code is different in each case you will have to go through and edit each one (or assign a different macro) as it occurs.

Once the program has converted the entire file, the output file can be read straight into Mini Office II. In this way all the powerful features of Mini Office II can be used on your old AtariWriter files.

Turn to Page 80 ▶

Line No.	AW code	Command description	Mini Office II equivalent
1100	1	Wide print DwiCvt	(P7)P2*
1200	2	Bottom Margin	BM
1300	3	Center/Block right	codes 250250
1400	4	Paragraph Spacing	stored code 140
1500	5	New Page	DP
1600	6	Define Printing	not used
1700	7	not used	
1800	8	Define Heading	OH
1900	9	Paragraph Indent	stored
2000	10	Justification	LJFJ
2100	11	not used	
2200	12	Left Margin	LM
2300	13	not used	
2400	14	not used	
2500	15	not used	
2600	16	Paragraph	999 text
2700	17	not used	
2800	18	Right Margin	RL
2900	19	Line Spacing	LS
3000	20	Top Margin	TM
3100	21	not used	
3200	22	Join Files	GF
3300	23	not used	
3400	24	not used	
3500	25	Page Length	PL
3600	26	not used	
3700	27	not used	
3800	28	Superscript	(P7)P*
3900	29	Subscript	(P7)P*

* P = Mini Office II printer macro

Table 1. Codes used in AtariWriter and Mini Office II

THE ULTIMATE SHOOT THEM UP!

MIRAX FORCE

Delta Base to Star Quest - Priority Despatch - Code Red. Your mission is to fly Star Quest over the Alien Mothership, destroying as much of it as possible with the ultimate goal being the Main Ship's Reactor.

Your flight will be hazardous whilst avoiding tall pylons, buildings and shadowed objects. You will come under intense attack from waves of well-equipped Defender Ships protecting the Mothership.

R.R.P. Cassette £7.95
Disk £9.95

TYNESOFT
Computer Software

ATARI XL/XE

Tynesoft Computer Software,
Addison Industrial Estate,
Blaydon, Tyne & Wear
NE21 4TE
TEL: (091) 414 4811

