THE AMSTRAD USER

Issue No. 13 $3.50 February 1986

DISC DRIVE OFFER
See Page 29

- *ELEVEN NEW COMMANDS FOR YOUR CPC464*
- *ALTERNATIVE PRINTER WITH TYPEWRITER*
- *A CASSETTE BOX LABEL PRINTER*
- *USER GROUP INFORMATION*

FOR THE NOVICE & EXPERIENCED USER

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DARE YOU TAKE THEM ON?

So you're pretty hot at video games are you? We dare you to take on these. They're the latest video game challenges from Amstrad and they're out to win.

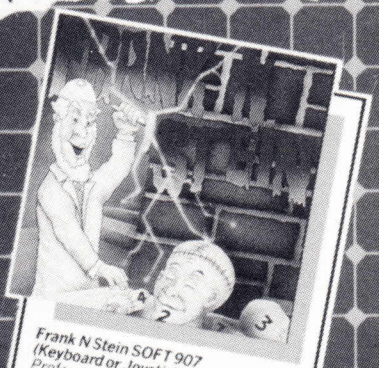
The substantial RAM in the Amstrad CP464 has provided our software authors with greater scope to bring you more challenging, more cunning, more exciting fun than ever. If you dare!

Ask your nearest Amstrad dealer for full details on these and all Amstrad software for home or business.

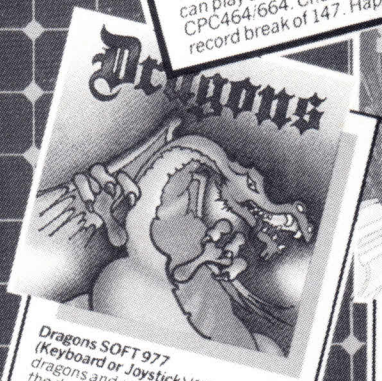
When ordering please quote catalogue number.

Alex Higgins World Snooker SOFT 978
(Keyboard or Joystick) Compatible with AMSTRAD SSA1 Speech Synthesiser. Pot a red ball, then a colour ball. Got your angles right? Control force and spin. Now you can play snooker with this software masterpiece for the CPC464/664. Challenge your friends, or go for a world record break of 147. Happy potting.

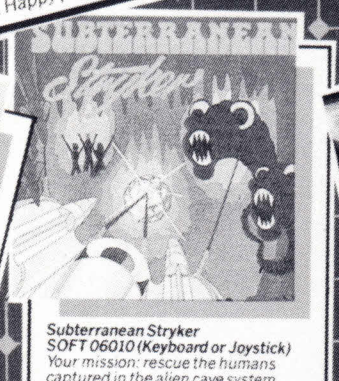
Fu-Kung in Las Vegas
SOFT 979 (Keyboard or Joystick)
Fu Kung is a US Marshall working undercover in Las Vegas. His task — to uncover crooked casinos. Can he get through each casino without being electrocuted, crushed or otherwise liquidated? Test your skill against some very odd odds.



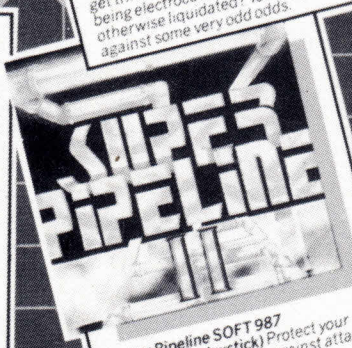
Frank N Stein SOFT 907
(Keyboard or Joystick) Guide Professor Stein around the dungeon picking up the bones. Be sure you get the right order. Then throw the activate switch. The quicker you activate the monster the less angry he'll be on subsequent levels!



Dragons SOFT 977
(Keyboard or Joystick) Kill the dragons and gather the gems before the dragons get you. You'll be climbing creepers, walking ledges and jumping for your life. Uh oh, the dragons change and get fiercer. you'd better watch out!



Subterranean Stryker
SOFT 06010 (Keyboard or Joystick)
Your mission: rescue the humans captured in the alien cave system. Your Stryker is an amazing craft, but so too are the hazards! Your fuel is limited so you'll have to steal more. Watch out for the alien command saucer. Good luck, you'll need it.



Super Pipeline SOFT 987
(Keyboard or Joystick) Protect your pipeline and workmen against attacks by manic power drills, gnawing caterpillars, ferocious hammers, the six-legged Venusian Pipe Spider and other weird dangers. Your water supply is limited so watch those leaks!

The Scout Steps Out
SOFT 988 (Keyboard or Joystick)
Your mission: be good a moral example to your scout troop. Go boldly, dive for examples of sea life. Clean windows of pensioner flats; gather mushrooms for camp tea (not poisonous ones); but take care — the enemy is everywhere.

Sorcery + SOFT 1983 (Disc only)
(Keyboard and Joystick) The evil forces of the necromancer are creeping in. Can you free your fellow sorcerers in time to save the ancient land? A breath-taking disc-based enhanced version of best selling game "Sorcery". 25 atmospheric locations with great graphics and sound effects!

AMSTRAD

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THE AMSTRAD USER

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February 1986

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For Tape Subscribers, the programs can be found at these approximate positions:
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All enquiries and contacts concerning this Publication should be made to The Amstrad User, Suite 1, 33 The Centreway, Blackburn Road, Mt. Waverley, Victoria 3149, Australia. [Telephone: (03) 232 7055].

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Contributions are welcome from readers or other interested parties.

In most circumstances the following payments will apply to published material: Letters-$5.00, Cartoons-$5.00 and a rate of $10.00 per page for programs, articles etc.

Contributions will not be returned unless specifically requested coupled with suitable stamped and addressed padded bag (for tapes) or envelope.

THE AMSTRAD USER

G'day,

I don't know about you, but after just two weeks on returning from holiday, I feel I need another break!

This is in no small part due to the fact that this issue had to be produced much more quickly than normal and the unbelievable amount of correspondence received over the last few weeks. In fact the postie struggled in with a bag full on the first day - yes, I did say a bag full. Consequently, the lights have been burning late into the night to catch up, so please be patient if you are waiting for a response.

For CPC464 owners, our exclusive offer on Page 29 should create much interest amongst those who do not own a disc drive. There is no question that a DDI-1 adds a great deal of power in terms of storage and speed to the 464 and you get to enter the world of CP/M. So, stop drooling over the lucky disc drive owners and save around $100 in the bargain. That should make them drool!

We had planned to start a series on CP/M this month, but have held it over to the March issue as the current Learning Centre is being extended by one month. By now you should all be accomplished musicians on the Amstrad, and to test that statement we will be running a Competition next month.

Finally, we have had a few queries concerning the ownership of the programs appearing in The Amstrad User. When you purchase your copy, either by subscription or elsewhere, you receive a license to use the programs and modify them as you wish for your own purposes. They are not public domain. The programs are copyright protected and should not be distributed or given away to others. The same applies to the tapes containing the printed programs. On the other end of the scale, the short article on Page 5 should open a few eyes!

See you next month,

Ed

Letters

All correspondence published in this section earns a payment of five dollars.
Letters should be addressed to The Editor, The Amstrad User, Suite 1, 33 The Centreway, Mt. Waverley, Victoria, 3149.

Here are three routines that the S+C Amstrad User Group have created. The first is a Printer On/Off test function which checks for Bit 6 on port F500. If it is there, the printer is OFF or OFFLINE or Not Connected, and if not there the printer is ready to receive characters.
The second and third routines are a SCAUG special. They were developed to get an uncomplicated FLASHING CURSOR routine that can be substituted for an INPUT in only a few moments.

Routine 1

```
10    MODE 1
20    PRINT "Press 'P' to
      test printer"
30    IF LOWER$(INKEY$)
      <>"P" THEN 30
40    MODE 1
50    LOCATE 15,12
60    GOSUB 8000
70    IF ptrbusy=64 THEN
      PRINT "Printer - Off
      line": GOTO 50:
      REM 64=OFF and 0=ON
80    PRINT "Printer - On
      line": GOTO 50
8000  PTRBUSY=INP(&F500)
      AND 64:RETURN
```

Routine 2

```
10    MODE 1
20    LOCATE 1,5:PRINT
      "Enter Name:";:GOSUB
      5000; name$=IN$
30    LOCATE 1,8:PRINT
      "Enter Age; ";:GOSUB
      5000:agr=VAL(IN$)
40    LOCATE 1,11:PRINT
      name$;" is";age;
      "years old."
50    IF INKEY$="" THEN 50
      ELSE 10
5000  cur=0:IN$=""
5010  cur=cur XOR 1:CURSOR
      cur :REM TOGGLE cur
      between 0 and 1
5020  FOR flashloop=1 to
      70:tempin$=INKEY$:IF
      tempin$="" THEN NEXT
      flashloop:GOTO 5010
5030  IF IN$="" AND
      tempin$=CHR$(127)
      THEN 5010
5040  IF tempin$=CHR$(127)
      THEN IN$=LIFT$
      (IN$,LEN(IN$)-1):
      PRINT CHR$(8);" ";
      CHR$(8);:GOTO 5010
5050  IF tempin$<>CHR$(13)
      THEN PRINT tempin$;:
      IN$=IN$+tempin$:GOTO
      5010
5060  CURSOR 0:RETURN
```

Routine 3 (Mod to Routine 2)

```
line 5000  cur=&BB84
line 5010  cur=cur XOR 5:
           CALL cur
line 5060  CALL &BB84:
           RETURN
```

I hope these routines will be useful to your readers.

M. Elliott, Pattersons Lake, Vic

This is a handy program for those Amstrad users who have purchased an Amstrad SSA-1 Speech Synthesiser. If you have lost or damaged your tape, don't despair. This program uses the I/O port at address &FBEE and the list of Allophones in the SSA-1 manual.
A second use for this program is to

incorporate it in the body of your own games etc./program. This saves the chore of loading/running the SSA-1 tape. Just change the line and allophone numbers.

```
10    FOR A=1 TO 12
20    READ B
30    OUT &FBEE,B: GOSUB
      1000
40    DATA 27,15,45,53,4,
      16,20,20,35,35,12,55
50    NEXT A
60    END
1000  FOR T=1 TO 100:
      NEXT T:RETURN
```

E.H. Plunkett, Eugowra, NSW

I, like many other Amstrad owners who have 8-bit printers, found that I could not fully use all the facilities of the printer (such as dot matrix graphics, user defined characters, etc.), because the Amstrad only sends 7 bits to the printer.

I have now overcome the problems completely by using a printer interface I have obtained from England. The interface plugs in between the Amstrad and the printer cable. Once a small program is loaded and run, the full 8 bits can be sent to the printer - hence all the codes 0 to 255 can be sent.

I am now able to fully use my 8-bit EPSON printer with absolutely no problems at all. I am sure other Amstrad users would like to obtain such an interface which are available from KDS Electronics, 15 Hill Street, Hunstanton, Norfolk, PE36 5BS, England at £19.95 plus £5.00 for airmail postage (total £24.95).

Geoff Barton, Penshurst, NSW

I call this routine a "shuffle". It removes a selected item and then the rest of the array shuffles forward to fill the gap.

```
10 RANDOMIZE TIME:'Remove
   first 'TIME' then the
   whole line
20 R=40: DIM A(40),B(40):
   'Creating the list A
30 FOR Q=1 TO 40:B(Q)=Q:
   NEXT
40 FOR W=1 TO 40:'or the
   number of the items
   needed
50 D=1+INT(RND*R):
   A(W)=B(D)
60 PRINT USING"####;A(W);
70 IF D=R THEN 90
80 FOR K=D TO R-1: B(K)=
   B(K+1): NEXT
90 R=R-1:NEXT
```

This routine is used by Czes Kosniowski whose book, Fun Maths on your Microcomputer, is described by Peter Campbell (User No.8, Page 5). It also appeared in an Australian computing magazine 2 or 3 years ago but I've mislaid the original reference.

I have substituted a listing based on this shuffle to locate the Maniac Mower items (User No.8, Page 28). Thanks to R.E. Chapman (User No.11, Page 4) for solving the honesty problem. I adapted your idea - anyone interested in swapping listings?

My listing uses more memory than the original because I obtain a random number between 1 and 40 called start. I then changed it for use in a LOCATE statement:

```
down=INT(screen/20) :
across=screen-down*20
IF across=0 THEN
across=1
LOCATE across,down:
PRINT tree$ (etc)
```

where screen=start*9+81.

Elizabeth Janson, Charlton, Vic

I enclose a copy of a page sent to me by Amsoft (UK) when I wrote to them asking how I could transfer my Amsword tape to disc after buying the DDI-1 for my CPC464. (see next page) I am sure your readers who have that problem will be glad to have this information. It works, though I did find after doing it that the text file was full (of nothing). Operating "clear text" (CTLR/CLR) eliminated that and all is fine.

I have recently translated a Commodore 64 program to the Amstrad for locating *amateur* radio satellites, given the necessary data. This is from the public domain, and copies can be obtained from AMSAT (Australia), Box 1234, Adelaide, SA 5001, by sending a blank tape in a jiffy bag with return postage and a donation to AMSAT Australia, an affiliate of the Wireless Institute of Australia and nothing to do with AUSSAT and that kind of satellite.

The program is 18k and converts easily to disc.

John Jefferys, Mt. Ku-ring-gai, NSW

We have purchased the book by Vince Apps called 40 Educational Games for the Amstrad CPC464 along with back copies of The Amstrad User. As a last resort, I write to you with two problems.

1. Amthello - Issue No. 2 March 1985. This program runs well but you can only play the computer. My computer knowledge is limited and I have been able to make minor additions and alterations to programs but this one has me beat. I would like to add the option of playing a friend rather than the computer - but how?

2. Multiplication and Division - Page 24 in 40 Educational Games. This program only allows one level of difficulty. As we have 5 boys aged 4 to 12, I would like to give the player a range of levels to choose from and then be able to do a complete game of 20 sums before choosing a new level or another game. No matter what I try, I can't get it to allow 20 sums before choosing a new level.

Could you please assist me?

G.J. de Vos, Geraldton, WA

This looks like a golden opportunity for the more experienced users to assist the de Vos family in their efforts to

become experienced too.
For the most sensible and well explained solution I receive before the end of April, a free copy of The Advanced User Guide awaits.

Instructions for transferring AMSWORD to disc.

Assuming you have the disc and interface connected to your machine, you should first make sure that there is no disc in the drive. Switch it on, then switch on the CPC464. (With the 664, just switch on). You can now insert your CPM system disc into the drive, then type:

|CPM

After the sign-on message, the A> prompt should appear, now type:

format

After a short pause, a message inviting you to place a disc to be formatted should appear, at this point you must replace the CPM disc with a blank disc and hit any key. The message 'Formatting Started' followed by 'Formatting Track n' will appear. n will count up to 39 then you will be asked if you would like to format another disc - to this hit the N key.

The disc in the drive will now be a completely blank, newly formatted disc, ready to have the Amsword program recorded onto it.

Reset the machine with CTRL/SHIFT/ESC then proceed as follows, type:

|TAPE

which will make the machine LOAD tape software, rather than disc then, making sure that the Amsword tape has been rewound to the start, press the PLAY key, then type:

LOAD"

followed by any key. When the Basic part of the program has loaded, the tape will stop and the "Ready" message will appear. Having loaded the Basic program, line 130 should be edited so that the command |DISC is changed to |TAPE, and line 185 should be added as follows:

185 END

Now type:

RUN

The message 'Loading Amsword ...' should appear and the tape will start up again. After several minutes the tape will stop and 'Ready' will appear again. Line 130 should now be edited back to |DISC and line 185 deleted. Type RUN, then go to Menu by pressing CTRL/ENTER. Save "AMSWORD".

Remember, Null filenames are not allowed and disc filenames follow the CPM format FILENAME.TYP, ie 8 characters followed by a 3 character field. ◊◊◊

Pirates to be scuttled

from Robin Nicholas

Recently in Los Angeles, two well known businessmen were arrested and charged with producing and offering for sale pirate copies of popular software such as Lotus 123, Symphony and dBase III for around $125 each.

Their downfall was when their clients started calling the originators of the software with complaints or for advice or support.

The arrests are two of many taking place in America as the authorities begin a major crackdown on the production and sale of pirated computer software.

Alleged pirates already behind bars can expect up to 10 years in jail with fines totalling $50,000.

The FBI is the spearhead of the campaign to flush out the pirates and bring them to justice. They appear to be assisted by the originators of the software who inform the authorities when they get an enquiry from an unregistered user.

Already, millions of dollars each year are lost by the software industry to pirates who sell the copied product for a fraction of its original cost.

The problem is by no means confined to the USA as recent moves in Europe have indicated. Legislation in many countries has been, or is in the process of being, passed to deter even the boldest pirate.

In Australia, the penalty is up to 2 year in jail and/or a maximum fine of $50,000. That's food for thought (and maybe bread and water at that) if you are ever tempted to break the latest game and sell it cheaply to your friends.

Piracy in Australia has always been rife and does little in the end to help the honest purchasers. This is because the majority of software available is imported and if it doesn't get sold the imports get reduced. In the end no one will bring any software in! The same principle applies to the relatively new software industry in our country which is having to find more devious and cunning ways of protecting their products.

In the end, it boils down to the final user. Is he/she prepared to take the risk when buying a pirated copy of being charged with receiving stolen property or sued by the originators of the software? Only their conscience can tell. ◊◊◊

Care of Floppies

by Simon Anthony

If you bothered to work out how many hours it may have taken to create the original data on a particular disc, you will no doubt be surprised how long it took.

Yet, all those bleary-eyed, triumphant and frustrating hours can be lost all for the sake of proper disc handling.

So here is some information which most users probably think they know, but invariably forget.

Disc Storage

The recording surface on a disc is very sensitive and spins microns above the read head, so just about anything is large enough to interrupt the flow of data between the two. It is therefore sensible not to lay the disc on a dusty surface and never, NEVER touch the disc surface - this really will cause problems.

As jackets may easily become warped if discs are stored on top of each other, it is prudent to store them upright in a dustproof container.

Disc Cleaning

In general, this cannot be easily done. Solvents such as alcohol, thinners and freon will remove the oxide from the disc.

There are companies who specialise in disc cleaning services, but it is quite expensive and can only be done as preventive maintenance and not as an answer to recovering lost data.

Handling Discs

You should never attempt to bend or fold a disc. Placing heavy objects on discs or jamming them together in a storage box will crush the jacket edges. This may well cause the discs to spin unevenly thus making reading erratic, if not impossible.

Labels

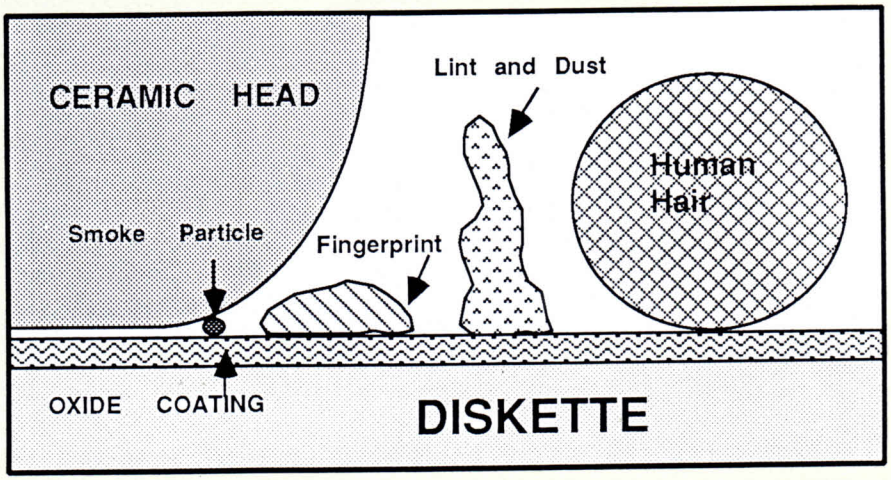
If you have to write on a label that has already been stuck to the disc, use a soft felt-tip pen. Don't use a ballpoint pen or pencil, and never use an eraser. The secret is to write the label before it is placed on the disc!

Peelable labels which do not leave a residue should be used if possible. Peel of the old label before applying a new one - you shouldn't apply labels in layers.

Jacket Care

You should never use clips, rubber bands or other types of fasteners on a disc envelope or jacket.

If you really want to attach something to it, put the complete disc into a plastic or paper envelope. You can then clip anything to this additional



covering.

Shelf Life

Discs should be stored within a temperature range of 10 to 50 degrees centigrade and a humidity range from 8 to 80 percent.

Some manufacturers claim that the shelf life of their discs, if kept within the conditions mentioned above, could be as much as thirty years!

Service life

A disc can normally be expected to provide from three to ten million passes. Naturally, a lot depends upon the disc drive being in good condition and handling by the user.

Operating Environment

The temperature and humidity ranges are the same as for the storage of discs. Thus excessive heat or sunlight should most certainly be avoided.

Magnetic Fields

As the data on a disc is stored in minute magnetic regions, the information can be altered or completely erased if the disc is exposed to a magnetic field.

Permanent magnets such as those on typing guides or those used to hold notes on the sides of filing cabinets should be kept well away from discs.

Permanent magnets are also present in loudspeakers - so beware!

It is wise not to place the discs near any materials which may be carrying heavy current. Remember too, that any transformer or motor generates a magnetic field, but very small motors found in disc drives, printers or cassette recorders are not a problem. Just be careful of larger motors like air conditioners.

You should also keep your discs away from external power supply transformers, ballasts in fluorescent desk lights and transformers in the bases of high intensity lampshades.

Airport Metal Detectors

There are two types of detectors. The walk-through weapon detector generates a slight magnetic field (about 5 oersteds), but as it requires at least 50 oersteds to affect a disc, there should be no problem.

The other type of detector is used to examine carry-on baggage. However, as these are X-ray detectors they do not have any measurable magnetic effects.

Sending a disc in the Mail

It is most important to remember when packing discs, to ensure that they cannot be bent or crushed. It is a good idea to put two pieces of stiff cardboard (or even hard foam plastic) which have been cut to a size slightly larger than the disc jacket. ◊◊◊

THE AMSTRAD USER HALL OF FAME

GAME	SCORE	TIME	ACHIEVER
Roland in Time	*72*	*18 mins*	*Paul Azzopardi*
Codename Mat	*601*	*90 mins*	*Rowland Hayes*
Roland in the Caves	*79884*	*4 mins*	*Emma Poynton*
Moonbuggy	*76010*	*13 mins*	*Tony Scott*
3-D Monster Chase	*1320 (7 keys)*	*7 mins*	*Adam Broadway*
Chuckie Egg	*395960*	*45 mins*	*Tony Barberi*
Harrier Attack	*207550*	*10 mins*	*Dean Stibbe*
Decathalon	*331840*	*110 mins*	*John Farquhar*
Star Commando	*193810*	*133 mins*	*Alex Smyth*
Combat Lynx	*43550*	*117 mins*	*R. Schneider*
Knight Lore	*98%*	*44 mins*	*Umut Akcelik*
Way of the Exploding Fist	*295600 (10th Dan)*	*41 mins*	*R. Schneider*
Sorcery	*65750*	*10 mins*	*Dean Stibbe*
Haunted Hedges	*20110*	*11 mins*	*Samuel Yim*

Some hints on how to play the above games and achieve a high score will be published next month.

♣♥♦♠

If you want to enter your name with the other achievers in our "Hall of Fame", then complete the relevant form (or copy) on Page 23 and return to The Amstrad User.

The Learning Centre

An Introduction to Music - Part Five

by Peter Campbell

This is the penultimate part of the Music Learning Centre which delves a little deeper into the theory and terminology used. Did you know that 'Banjo' Paterson's "A Bush Christening" was written in a waltz tempo? Read on ....

An Apology

I should like to thank the many readers who have written in to point out that I got my cycles kilo-ed. Much as it Hertz to admit it, I wuz wrong! What I should have said was:
1 cycle per sec. = 1 Hertz
1 kilocycle per sec. = 1 kiloHertz (kH)
Sorry about that!

Whither Goeth We?

Just when I thought I had the end of this series in sight, our kindly Editor sent me a book to review, "Making Music on the Amstrad". It turned out to be the best book on making music on the Amstrad that I have seen. There's just one thing about this - the book is packed with more ideas than you can shake a stick at and I have had to rethink the ending of this series. Instead of completing the series with this article, there will now be one further article discussing chorus affects, hardware envelopes and other goodies.

Now a word about notation

Earlier in this series I compared musical notation to handwriting. Just as notes can be taken as analogous to letters, so musical notation has its equivalents to words and phrases.

Ties and Slurs

If you look at a piece of music, you will notice a number of curved lines linking various notes. If the two notes are the same, then the curved line is a 'tie' and means that the first note is struck and then sustained for the duration of both.
Just to confuse us novices, a curved line can also be used to join different notes. This is called a 'slur' and may be defined as a curved line placed under or over two or more notes, indicating that they are to be played connectedly in a 'legato' manner ('legato' being the Italian word for 'connected', strangely enough). Thus we have a way of denoting a musical phrase (equivalent to, say, 'group together' or 'with a curved line').
What happens then if the composer particularly wants the notes played with distinct separation? Simple! He/she places a dot beneath, or above, the heads of the notes. The dots are called 'staccato', another Italian word of obvious meaning. We can program staccato notes by inserting a rest with a duration of one and a tone period and volume of zero between them, or by using a volume envelope which zeroes the volume at the end of each note.

Is Ana Crusis in the Bar?

If we listen carefully to a piece of music (I mean 'real' music, not this modern stuff which is all loud noise and not much else - Is that my age showing?), we will often hear or feel a regular 'beat' or 'pulse'. For example:
On the outer Barcoo where the churches are few (A.B. Paterson)
has a natural rhythm which leads us to divide it thus:
On the <u>out-</u> : er Bar<u>coo</u> : where the <u>chur-</u> : ches are <u>few</u>
and we find that there is an emphasis on the last syllable of each group of three. If music notes are divided into such natural groupings, each group is called a 'bar' and its end is shown by a 'bar line'. To aid the musician, the strong beat is placed on the FIRST note of the bar. Our line of verse then must be grouped in this manner:

On the : outer Bar- : coo where the : churches are : few
which seems to leave the words 'on the' very much 'on the outer'! There is no problem, however, as musicians have a term 'anacrusis' to describe the phenomenon. If you look closely, you will also notice that the 'missing' part of the bar is exactly matched by the incomplete bar at the end of the piece (in our example, by the word 'few').
To program that emphasis, we can adjust the volume. If you look back to 'Silent Night' in the December issue, you will see how I have varied the volume from 7 to 6. (Look for the figure at the end of each group of four data entries). This can also be done by assigning a different volume envelope to the notes that we wish to emphasise.
We can also achieve a similar effect if we are using just the internal speaker by bringing the sound onto more than one channel. Try this:

```
SOUND 2, 239, 200, 6
```

Now make the channel status 5 instead of 2

```
SOUND 5, 239, 200, 6
```

Notice the difference?

Signatures in Time

To help the musician see quickly how many beats there are in a bar of a particular piece of music, and what kind of beats they are, the composer uses two figures placed at the beginning of the piece, one above the other. These figures are called the 'Time Signature'.
The upper figure denotes the number of beats there are in the bar. The lower figure shows the value of each beat by indicating what fraction of a semibreve it is. Thus a crotchet (a quarter note) beat will have a lower figure of 4, while our example from Paterson's "A Bush Christening", having three beats to the bar, would have an upper figure of 3.
Sometimes, you may find a 'C' instead of a numerical fraction. This denotes 'common time', which is four crotchet beats per bar (ie. 4/4 time).

Messy Piano

Some sheet music is dotted with Italian words, some of which are abbreviated. As I suggested in an earlier part of this series, these tell us how softly (or how loudly), how quickly (or how slowly) and with what touch the composer intended the music to be played.
The most commonly used terms can be divided into three groups describing intensity of sound, tempo and touch respectively:

Piano (p) - soft
Pianissimo (pp) - very soft
Mezzo piano (mp) - moderately soft
Forte (f) - loud
Fortissimo (ff) - very loud
Mezzo forte (mf) - moderately loud
Crescendo (cresc. or $<$) - gradually becoming louder
Decrescendo (decresc. or $>$) - gradually becoming softer
Diminuendo (dim. or $>$) - the same

Adagio - slow
Largo - very slow and steady
Andante - easy walking pace
Moderato - at a moderate speed
Allegro - lively and fast
Allegretto - moderately fast
Presto - very fast

Legato - well connected
Staccato - separated, detached
Mezzo staccato - slightly detached
Maestoso - majestic
Sostenuto - sustained
Cantabile - in a singing style

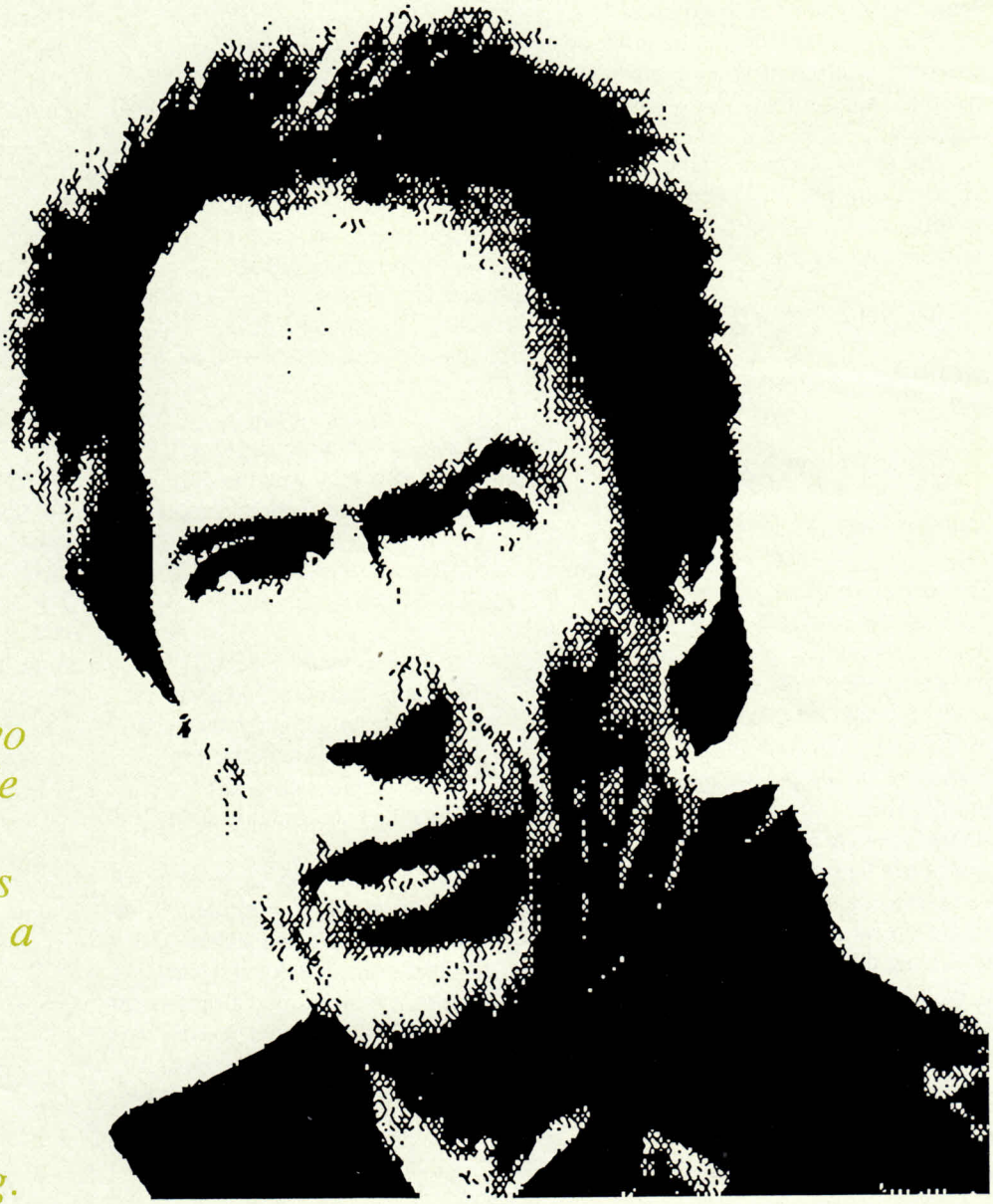
Whew! And that is only some of them! One way to avoid the problem is to stick to sheet music and books aimed at the beginner on organ, piano or violin. For example, my arrangement of Silent Night (for three voices) was based on "Children's Favourite Christmas Carols for singing, playing and colouring - Allans Edition No 1". Other good sources, particularly if you only want the melody line, are the 'Letter Music' and 'Melody Chord' series from Sight and Sound International. These are designed for players of electric organs, but are ideal for our purposes.
Another problem you will strike if you do not confine your musical endeavours to such simplified sheet music, is chords in both the bass and treble clefs. You could find that you need five or six voices. Which notes are the most important? How do you simplify the chords so that Arnold's three voices can cope? The answer requires an in-depth knowledge of music and is beyond the scope of these articles.
That is all the music theory that we need for our self-imposed task of playing music on an Amstrad computer, which brings us back to that other loose end - the mysterious additional listings.

The End is in Sight

Originally, I had intended the listings to provide you principally with a way of practising the reading of music. If you pressed an 'A' on the keyboard, then an 'A' would have sounded and been drawn in the appropriate place on the stave. However, December's excursion into Christmas Carols took the place of that idea and, instead of belatedly presenting that program, I have set out to revamp the listings. The results, along with echoes, chorus effects and hardware envelopes will form the final article in this series. ◊◊◊

Gunfight

by Rob Brown



Gunfight is a fast action game for two players with nimble fingers. As with many games in this magazine, it forms a solid base upon which to develop variations and enhancements of your own choosing.

```
10 REM ****************************
   ******************************
   **************
20 REM *
      GUNFIGHT
                *
30 REM *
    BY ROB BROWN
                *
40 REM *                          W
   RITTEN ON A 464
                *
50 REM *                          S
   TARTED=02/10/85
                *
60 REM *                        LAS
   T UPDATE=14/10/85
                *
70 REM ****************************
   ******************************
   **************
80 KEY 140,"ink 0,0:ink 1,15:mode
   2:pen 1:border 0:list"+CHR$(13)
90 '******** ^^^^^^ HANDY FOR EDIT
   ING ^^^^^^^^^^^^^^^^^^^^ ******
   **
100 GOSUB 1360
110 GOSUB 500
120 AFTER 50*120,0 GOSUB 1790
130 GOSUB 160
140 IF FLAG=1 THEN GOTO 130
150 GOSUB 1100:flag=1:GOTO 110
160 REM ************************> I
   NPUT HANDLING <****************
   ************
170 IF INKEY(68)<>m1 THEN lman=lman
   -one:GOSUB 240
180 IF INKEY(0)<>m1 THEN rman=rman-
   one:GOSUB 300
190 IF INKEY(21)<>m1 THEN lman=lman
   +one:GOSUB 240
200 IF INKEY(2)<>m1 THEN rman=rman+
   one:GOSUB 300
210 IF INKEY(70)<>m1 THEN GOSUB 360
220 IF INKEY(8)<>m1 THEN GOSUB 430
230 RETURN
240 REM ************************> MO
   VE LEFT MAN <******************
   ************
250 PEN one
260 IF lman=one THEN lman=two
270 IF lman=24 THEN lman=23
280 LOCATE two,lman:PRINT CHR$(200)
   ;CHR$(201):LOCATE two,lman+one:
   PRINT CHR$(202);CHR$(203):LOCAT
   E two,lman-one:PRINT"  ":LOCATE
    two,lman+two:PRINT"  "
290 RETURN
300 REM ************************> M
   OVE RIGHT MAN <****************
   ************
310 PEN two
320 IF rman=one THEN rman=two
330 IF rman=24 THEN rman=23
340 LOCATE t38,rman:PRINT CHR$(204)
   ;CHR$(205):LOCATE t38,rman+one:
   PRINT CHR$(206);CHR$(207):LOCAT
   E t38,rman-one:PRINT"  ":LOCATE
    t38,rman+two:PRINT"  "
350 RETURN
360 REM ************************>
   SHOOT L-R <********************
   ************
370 PEN 1:det=0:LOCATE two,lman:PRI
   NT CHR$(208);CHR$(209):PRINT" "
   ;CHR$(210);CHR$(211):z=((26-lma
   n)*16)-12:MOVE 48,z
380 IF z>192 AND z<240 THEN DRAWR 2
   48,0,2:SOUND 1,100,20,15,0,2:SO
   UND 2,0,20,12,0,0,30:CALL &BD19
   :DRAWR -248,0:GOTO 410
390 DRAWR 559,0,2:SOUND 1,100,20,15
   ,0,2:SOUND 2,0,20,12,0,0,30:CAL
   L &BD19:DRAWR -559,0
400 IF lman=rman OR lman=rman+1 THE
   N:det=1:GOSUB 860
410 rs=rs-1:LOCATE 4,1:PEN 1:PRINT"
   RED:";rs
420 RETURN
430 REM ************************>
    SHOOT R-L <*******************
   ************
440 PEN two:LOCATE t38,rman:PRINT C
   HR$(212);CHR$(213):LOCATE t38,r
   man+one:PRINT CHR$(214);CHR$(21
   5):z=((26-rman)*16)-12:MOVE 592
   ,z
450 IF z>192 AND z<240 THEN DRAWR -
   274,0,1:SOUND 4,100,20,15,0,2:S
   OUND 2,0,20,12,0,0,30:CALL &BD1
   9:DRAWR 274,0:GOTO 480
460 DRAWR -559,0,1:SOUND 4,100,20,1
   5,0,2:SOUND 2,0,20,12,0,0,30:CA
   LL &BD19:DRAWR 559,0
470 IF rman=lman OR rman=lman+1 THE
   N:det=2:GOSUB 860
480 bs=bs-1:LOCATE 22,1:PEN 2:PRINT
   "BLUE:";bs
490 RETURN
500 REM ********************> SET SC
   REEN & INITIALISE <************
   ************
510 DEFINT a-z
520 flag=1:rman=10:lman=10
```

```
530 ENT 2,45,-5,1
540 one=1:two=2:t38=38:m1=-1:bs=180
    :rs=180
550 SYMBOL AFTER 200
560 SYMBOL 200,7,255,3,3,3,0,15,31
570 SYMBOL 201,240,255,240,248,240,
    192,252,246
580 SYMBOL 202,27,27,0,3,3,3,3,3
590 SYMBOL 203,246,246,0,240,48,48,
    48,184
600 SYMBOL 204,15,255,15,31,15,3,63
    ,111
610 SYMBOL 205,224,255,192,192,192,
    0,240,248
620 SYMBOL 206,111,111,0,15,12,12,1
    2,29
630 SYMBOL 207,216,216,0,192,192,19
    2,192,192
640 SYMBOL 208,3,255,3,3,3,1,3,3
650 SYMBOL 209,192,255,192,224,192,
    131,254,228
660 SYMBOL 210,3,0,3,3,3,123,127,71
670 SYMBOL 211,216,0,252,252,12,12,
    12,15
680 SYMBOL 212,3,255,3,7,3,193,127,
    39
690 SYMBOL 213,192,255,192,192,192,
    128,192,192
700 SYMBOL 214,27,0,63,63,48,48,48,
    112
710 SYMBOL 215,192,0,192,192,192,22
    2,254,226
720 SYMBOL 217,0,0,2,34,34,46,28,12
730 SYMBOL 218,0,0,0,0,4,12,132,132
740 SYMBOL 219,12,12,14,13,15,7,1,5
750 SYMBOL 220,180,116,56,176,180,1
    80,184,176
760 SYMBOL 221,5,3,1,9,41,49,97,33
770 SYMBOL 222,224,224,192,128,129,
    170,156,136
780 INK 0,13:PAPER 0:INK 1,3:INK 2,
    1:INK 3,9
790 MODE 1
800 PEN 3:LOCATE 19,11:PRINT CHR$(2
    17);CHR$(218)
810 LOCATE 19,12:PRINT CHR$(219);CH
    R$(220)
820 LOCATE 19,13:PRINT CHR$(221);CH
    R$(222)
830 GOSUB 240:GOSUB 300
840 BORDER 1,3:SPEED INK 100,100
850 RETURN
860 REM ****************************
    > HIT DETECTION <**************
    ************
870 IF det=1 THEN GOSUB 1000
880 IF det=2 THEN GOSUB 900
890 RETURN
900 REM ********> DETECTED LEFT MAN
     <*********
910 PEN 1
920 SPEED INK 1,2:BORDER 24,3
930 FOR t=31 TO 0 STEP -1:SOUND 7,0
    ,1,15,0,0,t:NEXT
940 FOR t=127 TO 252 STEP 4:INK 1,t
     MOD 26:LOCATE two,lman:PRINT C
    HR$(t);CHR$(t+one):LOCATE two,l
    man+one:PRINT CHR$(t+two);CHR$(
    t+3):NEXT
950 BORDER 3,1:SPEED INK 100,100
960 INK 1,3
970 GOSUB 240
980 bs=bs+5
990 RETURN
1000 REM *****> DETECTED RIGHT MAN <
     **********
1010 PEN 2
1020 SPEED INK 1,2:BORDER 24,3
1030 FOR t=0 TO 31:SOUND 7,0,1,15,0,
     0,t:NEXT
1040 FOR t=127 TO 252 STEP 4:INK 2,t
     MOD 26:LOCATE t38,rman:PRINT C
    HR$(t);CHR$(t+one):LOCATE t38,r
    man+one:PRINT CHR$(t+two);CHR$(
    t+3):NEXT
1050 BORDER 3,1:SPEED INK 100,100
1060 INK 2,1
1070 GOSUB 300
1080 rs=rs+5
1090 RETURN
1100 REM ************************>
     END OF GAME <**************
    ************
1110 SYMBOL AFTER 255
1120 PAPER 0:PEN 1:MODE 1:INK 0,0:IN
    K 1,6:INK 2,19
1130 x=15
1140 LOCATE 1,1:PRINT STRING$(40,CHR
     $(216))
1150 LOCATE 1,25:PRINT USING"&";STRI
     NG$(40,CHR$(218));
1160 PEN 2
1170 LOCATE x,5:PRINT CHR$(134);CHR$
     (131);CHR$(137)
1180 LOCATE x,6:PRINT CHR$(133);CHR$
     (32);CHR$(140)
1190 LOCATE x,7:PRINT CHR$(137);CHR$
     (140);CHR$(134)
1200 x=x+3
1210 LOCATE x,7:PRINT"UNFIGHT"
1220 IF bs>rs THEN LOCATE 14,15:PEN
     3:PRINT"BLUE HAS WON"
1230 IF rs>bs THEN LOCATE 14,15:PEN
     3:PRINT"RED HAS WON"
```

```
1240 IF rs=bs THEN LOCATE 18,15:PEN
     3:PRINT"TIE"
1250 ENV 5,4,2,1
1260 SOUND 7,150,20,5,5,5:SOUND 7,0,
     15:SOUND 7,150,10,5,5,5:SOUND 7
     ,0,5:SOUND 7,150,10,5,5
1270 SOUND 7,100,20,5,5,5:SOUND 7,0,
     15:SOUND 7,100,10,5,5,5:SOUND 7
     ,0,5:SOUND 7,100,10,5,5
1280 SOUND 7,75,10,5,5,5
1290 ENT 5,1,0,30,5,1,1,5,1,1
1300 SOUND 7,0,5
1310 SOUND 7,50,40,5,5,5
1320 LOCATE 5,24:PRINT"Press any key
      for another game"
1330 FOR t=0 TO 77:IF INKEY(t)<>-1 T
     HEN 1350
1340 NEXT:GOTO 1330
1350 RETURN
1360 REM **************************>
     OPENING SCREEN <**************
     ************
1370 SPEED INK 60,1
1380 ENT -1,1,20,1:ENV 1,3,-1,2,3,1,
     1
1390 MODE 0:INK 1,16:INK 2,12:INK 3,
     6:INK 4,1:INK 5,25:PRINT CHR$(2
     3);CHR$(1)
1400 INK 0,0:PAPER 0:PEN 1:CLS
1410 MOVE 0,0:DRAWR 0,399,10:DRAWR 6
     39,0:DRAWR 0,-399:DRAWR -639,0
1420 i%=1:x%=192:y%=300:l$="G":GOSUB
      1660
1430 l$="U":GOSUB 1660
1440 l$="N":GOSUB 1660
1450 l$="F":GOSUB 1660
1460 l$="I":GOSUB 1660
1470 l$="G":GOSUB 1660
1480 l$="H":GOSUB 1660
1490 l$="T":GOSUB 1660
1500 i%=2:l$="B":x%=288:y%=200:GOSUB
      1660
1510 l$="y":GOSUB 1660
1520 i%=3:x%=192:y%=170:l$=CHR$(82):
     GOSUB 1660:l$=CHR$(111):GOSUB 1
     660
1530 l$=CHR$(98):GOSUB 1660:l$=CHR$(
     32):GOSUB 1660:l$=CHR$(66):GOSU
     B 1660
1540 l$=CHR$(114):GOSUB 1660:l$=CHR$
     (111):GOSUB 1660:l$=CHR$(119):G
     OSUB 1660
1550 l$=CHR$(110):GOSUB 1660
1560 i%=4:x%=48:y%=20:l$="INSTRUCTIO
     NS(Y/N)":GOSUB 1660
1570 ENV 1,3,5,2:ENT 1,3,5,2
1580 SOUND 7,500,20,0,1,1:SOUND 7,0,
     10,1:SOUND 7,500,20,0,1,1
1590 SOUND 7,400,20,0,1,1:SOUND 7,0,
     10:SOUND 7,400,20,0,1,1
1600 SOUND 7,300,20,0,1,1:SOUND 7,0,
     10:SOUND 7,300,20,0,1,1
1610 SOUND 7,500,30,0,1,1
1620 BORDER 0,26:INK 0,0,26
1630 a$=INKEY$:IF a$="" GOTO 1630
1640 IF UPPER$(a$)="Y" THEN GOSUB 18
     10
1650 RETURN
1660 REM ***> lasers & print <***
1670 MOVE 0,0:DRAW x%,y%,5
1680 MOVE 0,399:DRAW x%,y%
1690 MOVE 639,399:DRAW x%,y%
1700 MOVE 639,0:DRAW x%,y%
1710 MOVE 0,0:DRAW x%,y%,5
1720 MOVE 0,399:DRAW x%,y%
1730 MOVE 639,399:DRAW x%,y%
1740 MOVE 639,0:DRAW x%,y%
1750 x1%=XPOS:y1%=YPOS:PLOT 1000,1,i
     %:MOVE x1%,y1%:TAG:PRINT l$;:TA
     GOFF
1760 x%=XPOS
1770 SOUND 7,50,-2,15,1,1
1780 RETURN
1790 REM *******> SET FLAG FOR END O
     F GAME <**********
1800 flag=0:RETURN
1810 REM ***************> INSTRUCTION
     S <******************
1820 MODE 1:PEN 1:LOCATE 16,1:PRINT
     CHR$(24);"GUNFIGHT";CHR$(24)
1830 PRINT:PEN 2:PRINT"   GUNFIGHT i
     s a two player game in     whic
     h you must shoot your oponent a
     s    much as possible in two mi
     nutes!"
1840 PRINT:PEN 3:PRINT"   There are
     two men which move up and  down
      each side of the screen, you m
     ust  control these."
1850 PRINT:PEN 1:PRINT"   There is a
     lso a cactus located in themidd
     le of the screen which you cann
     ot   shoot through and therefor
     e acts as      cover."
1860 PRINT:PEN 2:PRINT"   You start
     off with 180 points and    lose
      one point for each shot but ga
     in 5 points for each time you h
     it your       opposing player."
1870 LOCATE 14,25:PEN 1:PRINT"PRESS
     ANY KEY"
1880 IF INKEY$="" THEN 1880
1890 CLS:PEN 1:LOCATE 16,1:PRINT CHR
     $(24);"GUNFIGHT";CHR$(24)
```

```
1900 PEN 2:LOCATE 11,3:PRINT"USE THE
     SE KEYS TO MOVE"
1910 LOCATE 1,5:PEN 1:PRINT CHR$(135
     );STRING$(5,CHR$(131));CHR$(139
     )
1920 LOCATE 1,6:PRINT CHR$(133);:PEN
      2:PRINT" TAB ";:PEN 1:PRINT CH
     R$(138)
1930 LOCATE 1,7:PRINT CHR$(141);STRI
     NG$(5,CHR$(140));CHR$(142)
1940 LOCATE 1,8:PRINT CHR$(135);STRI
     NG$(5,CHR$(131));CHR$(139)
1950 LOCATE 1,9:PRINT CHR$(133);:PEN
      2:PRINT"CAPS ";:PEN 1:PRINT CH
     R$(138)
1960 LOCATE 1,10:PRINT CHR$(141);STR
     ING$(5,CHR$(140));CHR$(142)
1970 LOCATE 1,11:PRINT CHR$(135);STR
     ING$(5,CHR$(131));CHR$(139)
1980 LOCATE 1,12:PRINT CHR$(133);:PE
     N 2:PRINT"SHIFT";:PEN 1:PRINT C
     HR$(138)
1990 LOCATE 1,13:PRINT CHR$(141);STR
     ING$(5,CHR$(140));CHR$(142)
2000 LOCATE 9,6:PEN 2:PRINT STRING$(
     10,CHR$(154));"UP";STRING$(16,C
     HR$(154)):LOCATE 9,9:PRINT STRI
     NG$(9,CHR$(154));"FIRE";STRING$
     (15,CHR$(154)):LOCATE 9,12:PRIN
     T STRING$(9,CHR$(154));"DOWN";S
     TRING$(15,CHR$(154))
2010 PEN 1:LOCATE 38,5:PRINT CHR$(13
     5);CHR$(131);CHR$(139)
2020 LOCATE 38,6:PRINT CHR$(133);:PE
     N 2:PRINT CHR$(240);:PEN 1:PRIN
     T CHR$(138)
2030 LOCATE 38,7:PRINT CHR$(141);CHR
     $(140);CHR$(142)
2040 LOCATE 38,8:PRINT CHR$(135);CHR
     $(131);CHR$(139)
2050 LOCATE 38,9:PRINT CHR$(133);:PE
     N 2:PRINT CHR$(242);:PEN 1:PRIN
     T CHR$(138)
2060 LOCATE 38,10:PRINT CHR$(141);CH
     R$(140);CHR$(142)
2070 LOCATE 38,11:PRINT CHR$(135);CH
     R$(131);CHR$(139)
2080 LOCATE 38,12:PRINT CHR$(133);:P
     EN 2:PRINT CHR$(241);:PEN 1:PRI
     NT CHR$(138)
2090 LOCATE 38,13:PRINT CHR$(141);CH
     R$(140);CHR$(142)
2100 PEN 3:LOCATE 1,14:PRINT"RED MAN
     ":LOCATE 33,14:PRINT"BLUE MAN"
2110 LOCATE 14,25:PEN 1:PRINT"PRESS
     ANY KEY"
2120 IF INKEY$="" THEN 2120
2130 RETURN
```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USER GROUP INFORMATION

Existing Groups continue to thrive, and those recently formed are growing in leaps and bounds.

Firstly, we welcome a new group which will cover the Geelong area in Victoria. Over a dozen people attended the first meeting held at the end of last year at which a number of officers were elected to get the group off the ground. They are Ron Butterfield (President: 052 502251), Arthur Tounsett (Vice-President: 052 782160) and Ross Bennett (Secretary: 052 441556).

The next meeting, a General meeting, is expected to be held in February and interested parties should contact any of the above officers for details of date, time and venue.

The Southern Tasmanian Amstrad Club is in the fortunate position of having two secretaries - Julie Cariaga for the first half of the year and Rosemarie Parkinson for the second half. This seems a good idea as the job is quite often time consuming. The club has fixed a membership of $5.00 for adults and $1.00 for students. This is to cover accommodation and some publicity. If the club requires further funds then, subject to the membership, a further levy may be raised for that project.

Meetings are well attended and have consisted of questions and answers, programming instruction, demonstrations of both software and hardware, the latter including light pens and the CPC6128. The final meeting of 1985 was devoted to an Activities Night where many were given the opportunity to try a wide selection of games. As the venue for 1986 meetings (hopefully the first Wednesday of each month at 7.30 pm) has not been finalised, enquiries should be made with Graham or Jenece West on 34 5817

Interestingly enough, a recent visitor who was a Head Teacher of one of Hobart's outer-suburban primary schools indicated that whilst Tasmanian schools' main computer must be a BBC, his school along with others were buying Amstrad CPC464's because they could get two of them for the price of the BBC!

Canberra Amstrad Users Group had a General Meeting at the end of last year to replace the group's establishing steering committee. Meetings are held on the first Wednesday of each month, and any officer listed under this group's name in the Nationwide User Group section can be contacted with queries. A membership fee of $16 per year includes a periodic newsletter and membership has reached almost 60. At a recent meeting, a representative of AWA-Thorn demonstrated the CPC6128 and the associated CP/M Plus (CP/M 3.1) along with Turbo Pascal.

AMSWEST (Perth) continues to flourish with a membership of over 100 including 3 affiliated country clubs. They have correspondents in the eastern states, the UK, Turkey and Japan. A course in Basic has just completed and will be followed by a short Machine Code course. Another Basic course is scheduled later in the year.

Port Pirie Amstrad User Group is pleased to welcome another six new members to swell the ranks and is receiving an encouraging number of new enquiries. The group now meets twice a month - once on the first Monday of each month and again on the third Monday. This second meeting is devoted to teaching purposes. There are two new contact points - John Coleman (Secretary) on 32 6767 and Keith Partridge on 32 3919 - who will answer any queries relating to the groups activities.

Eastern Amstrad User Group (Vic) is on the move again! As from their next meeting (General meeting) on 2nd February 1986, proceedings will take place in St. Ninian's Church Hall. This is on the corner of McCracken Avenue and Orchard Grove in South Blackburn. Meeting times remain the same.

NATIONWIDE USER GROUPS

WESTERN AUSTRALIA

AMSWEST, Perth

President:	Tony Clitheroe	(09 275 1257)
Secretary:	Mrs. P.T. Ardron	(09 361 8975)
Treasurer:	Eric Stallard	(09 339 6361)

Regular meetings take place at a venue in Shenton Park on the first and third Tuesdays of each month starting at 7.30p.m.

SOUTHSIDE AMSTRAD USER CLUB

President:	John Marshall	(09 390 7335)
Secretary:	Linda Marshall	(09 390 7335)
Treasurer:	Eric Tytherleigh	(09 390 8865)
Librarian:	Roy Depurouzel	(09 457 9026)

SAUC meets from 7.00 p.m. every 2nd and 4th Tuesday of each month at Thornlie Technical College. All meetings are socially orientated with a minimum of business matters and can include software and hardware demonstrations. Discounts have been obtained from most local dealers and are available to financial members.

SOUTH AUSTRALIA

AMSTRAD COMPUTER CLUB INC. (SA)

President:	Chris Sowden	(08 295 5923)
Vice Pres:	Frank Matzka	(08 382 2101)
Treasurer:	Les Jamieson	(08 356 9612)

The group now meets each Tuesday at the Unley High School between 6.30 p.m. and 9.00 p.m. Any of the above

officers can be contacted for further details and correspondence can be addressed to PO Box 210, Parkholme, 5043.

PORT PIRIE AMSTRAD USER GROUP

President:	Rick Cable	(086 32 5967)
Treasurer:	Dave Green	(086 32 6834)
Secretary:	John Coleman	(086 32 6767)

The group meets at 7.30 p.m. on the first and third Monday of each month at the Princess Park Scout Hall, Three Chain Road, Solomontown. The second meeting each month is allocated to teaching purposes. Meetings are well attended with members from Pt. Broughton, Warnertown and even Burra. For further details contact Rick Cable who will advise on the benefits of belonging to this group.

API COMPUTER GROUP

Contact: Mike Denieuwe (08 225 5995)

The Australian Post-Tel Institute has a number of computer groups, almost entirely dedicated to Amstrads. Monthly meetings are held in:

Blair Athol	- 2nd Tuesday of the month at 5.30 p.m.
Elizabeth	- last Tuesday of the month at 5.30 p.m.
St. Marys	- 3rd Tuesday of the month at 5.15 p.m.
Christie Downs	- last Tuesday of the month at 5.30 p.m.

with a central meeting place in the City at various times during the month. Membership is $15 per year. For more details, contact Mike Denieuwe during office hours on the above telephone number, or on 08-297 8500 after hours.

VICTORIA

WESTERN AMSTRAD USER GROUP

President:	Mike McQueen	(03 312 5594)
Secretary:	Peter Pilbeam	(03 336 0705)
Treasurer:	Frank Melino	(03 337 2495)

The meetings are held on each alternate Tuesday and Sunday (to allow for shift workers) at the Tottenham North Primary School, South Road, Braybrook.

CENTRAL AMSTRAD USER SOCIETY

President:	Rimon Russo	(03 428 4281)
Vice-Pres:	Dennis Whelan	(03 367 6614)
Treasurer:	Fred Gillan	(03 598 5780)
PR Officer:	John Holmes	(03 434 1607)

Meetings are held twice a month in the Hall at the corner of Church and Somerset Streets, Richmond on the first Sunday of each month commencing at 4.00 p.m. and generally twelve days later on a Friday evening starting at 7.00 p.m. All meetings are conducted in a friendly atmosphere - families are welcome.

EASTERN AMSTRAD USER GROUP

President:	Tony Blakemore	(03 878 6212)
Secretary:	Andrew Martin	(03 729 8471)
Treasurer:	Ron Dunn	(03 277 7868)

Regular meetings are held on the first Sunday of every month at St. Ninian's Church Hall, cnr. McCracken Avenue and Orchard Grove, South Blackburn. The group organises tutorials for beginners as well as lectures and demonstrations. Proceedings commence at 2.00 p.m.

SOUTHERN AMSTRAD USER GROUP

President:	Mike Prezens	(03 781 2158)
Secretary:	Martin Scragg	(059 78 6949)
Treasurer:	Steve Issell	(03 786 9340)

Meetings are held on the third Tuesday of every month (except December) from 7.30 p.m. to 10.30 p.m. The venue is the Senoir Campus at John Paul College, Frankston.

NORTHERN AMSTRAD USER GROUP

Contact: Brian Ellis (03 469 4425)

This group caters for users in the Preston/Coburg areas. Meetings are devoted to learning more about computers and consist of lectures, demonstrations and practical workshops of projects such as modems, expansion busses etc. Arcade games are banned from meetings. The Group is privately funded and there are no membership fees.

SALE AMSTRAD GROUP

Organiser: Alan Harris (051 44 1454)

The Group meets informally every Thursday night from 7.00p.m. at the Sale Neighbourhood House in Leslie Street. In addition, small group tutorials are held twice a month. Contact Alan Harris for further details.

GEELONG AMSTRAD USER GROUP

President:	Ron Butterfield	(052 50 2251)
Vice-President:	Arthur Tounsett	(052 78 2160)
Secretary:	Ross Bennett	(052 44 1556)

This is a new group and propective members should contact one of the above for details of meeting time and place.

ACT

CANBERRA AMSTRAD USER'S GROUP

Convenor:	Arthur McGuffin	(062 31 9437)
Secretary:	Peter Stehn	(062 81 0258)
Treasurer:	Phil Rogers	(062 41 3039)

The group meets at 7.30 p.m. on the first Wednesday of each month in the Seminar Room of the Oliphant Building at the Research School of Physical Science, Australian National University.

NEW SOUTH WALES

JUBOL AMSTRAD USER GROUP of COFFS HARBOUR and DISTRICT

Contacts:	Bruce Jones	(066 52 8334)
	Jim Owen	(066 55 6190)

The "JUBOL" User Group is currently a small group covering the Coffs Harbour area. They have already met a few times in an informal manner and are very keen for other

users in the area to contact them.

SYDNEY AMSTRAD COMPUTER CLUB

President:	Raja Vijayenthiran	(02 519 4106)
Secretary:	Reed Walters	(02 560 9487)
Treasurer:	Jim Chryss	(02 327 7872)
Junior Rep:	Daniel Story	

This club, which services the inner City area, meets on the first Monday of every month at 7.00 p.m. A permanent meeting place has not yet been established so prospective members or visitors are advised to contact one of the officers listed above.

QUEENSLAND

BRISBANE AMSTRAD COMPUTER CLUB

President:	Paul Witsen	(07 371 9259)
Secretary:	John Roberts	(07 283 3349)
Tech. Editor:	Peter Walker	(07 371 4286)
Tech. Librarian:	Peter Golledge	(07 376 1651)

Meetings are held on the first Tuesday of each month at Junction Park State School, Annerley starting at 7.30 p.m. in Room 15a.

SOUTHSIDE AMSTRAD USER GROUP (QLD)

President:	Michael Toussaint	(07 200 5414)
Secretary:	Sylvia Wilson	(07 209 1947)
Treasurer:	Col Liebke	(07 200 5555)

Meetings take place every third Saturday of the month at 10 Carramar Street, Loganlea starting at 2.00 p.m. The group was formed to service the southern outskirts of Brisbane and membership consists of beginners to advanced programmers. Various demonstrations are given at meetings plus Basic programming instruction on a fortnightly basis and will later expand to include machine code.

TASMANIA

SOUTHERN TASMANIAN AMSTRAD USER CLUB

Meetings generally take place on the first Wednesday of each month, commencing at 7.30 p.m. Enquiries should be made to Graham or Jenece West - (002) 34 5817.

The User Group Information pages are open to any non-commercial group wishing to publicise their activities, or for any Amstrad owner who would like to establish a group in his or her area. This service is free.

If you would like details included, drop a line to The Editor with the information you want to appear, and we will do the rest.

Remember, the details are required by the first week of each month to ensure publication in the following month's magazine.

USER GROUP CONTACT LIST

Please note that the following names are listed as contacts for new user groups and should NOT be viewed as a problem solving service. See other list for established groups.

NSW		
Chris Craven	Canowindra	(063) 44 1150
Trevor Farrell	Coolah/Mudgee area	(063) 77 1374
T.J. Webb	Glossodia	(045) 76 5291
David Higgins	Inverell	(067) 22 1867
John Patterson	Lismore	(066) 21 3345
Paul Wilson	Moruya	(044) 74 3160
Frank Humphreys	Mummulgum	(066) 64 7290
Martin Clift	Narrabri	(067) 92 3077
Bob Hall	Newcastle	(049) 52 6915
Reuben Carlsen	North Sydney	(02) 957 2505
Stephen Gribben	Singleton	(065) 72 2732
Ken Needs	St. Ives	(02) 449 5416
Chas Fletcher	Toongabbie	(02) 631 5037
Nick Bruin Snr.	Tweed Valley	(066) 79 3280
Jim Owen	Uranga	(066) 55 6190
Vic		
Stuart McLean	4/304 Albert St., Sebastopol, 3356	
David Carbone	Burwood	(03) 29 4135
Rod Anderson	Camperdown	(055) 93 2262
Paul Walker	Heathmont	(03) 729 8657
Terry Dovey	Horsham	(053) 82 3353
Andrew Portbury	Leongatha	(056) 62 3694
Sue Kelly	Manangatang	(050) 35 1402
Keith McFadden	Numurkah	(058) 62 2069
Lindsay Parker	Wandin North	(059) 64 4837
QLD		
Debbie Topp	Bribie Island	(075) 48 1688
Steven Doyle	Caloundra	(071) 91 3147
Mick O'Regan	Gladstone	(079) 79 2548
Kylie Telford	Goondiwindi	Calingunee246 (weekends only)
D.F. Read	Ingham	(077) 77 8576
Tim Takken	Ipswich	(07) 202 4039
Michael Toussaint	Loganlea	(07) 200 5414
Alan Laird	Maryborough	(071) 22 1982
R.C. Watterton	Toowoomba	(076) 35 4305
SA		
Lindsay Allen	Murray Bridge	(085) 32 2340
WA		
Dave Andersen	6 Kitchener Rd., Merredin, 6415	
Graeme Worth	Scarborough	(09) 341 5211
P.M. Nuyens	Waroona	(095) 33 1179
TAS		
Conal McClure	Scottsdale	(003) 52 2514
NT		
G.P. Heron	Tiwi	(089) 27 8814

Eleven new commands for the CPC464

by John Wells

The idea for this program came from an English publication, 'Home Computing Weekly', which published a similar program which was designed to run on a tape based CPC464 but was not relocatable. This meant that if you had added any goodies like a disc drive or speech synthesiser or any peripheral which resets the top of memory address, then the program would not work.

I was faced with this problem having installed a disc drive, and after considering altering the program to run at the disc system top of memory, I decided that it would be just as easy and much more useful to write a completely new program which would be relocatable. The following program is the result.

To use the new BASIC commands, they must be preceded by the bar symbol (shift @), just like any other external command. The new graphics commands are:

```
¦MOVE
¦MOVER
¦PLOT
¦PLOTR
¦DRAW
¦DRAWR
```

These differ from the standard commands in that they are able to set both the graphics write mode and pen colours directly. They do this by using the parameters which are passed to the RSX with the command. The format for these commands is:

```
¦COMMAND,x,y,p,w
```

The parameters "x" and "y" are the graphic x and y co-ordinates (or the x and y offsets in the case of the relative commands), "p" is the pen number and "w" the write mode. This can be any of the following:

```
0 = Replace
1 = XOR
2 = AND
3 = OR
```

The byte in memory representing the current state of the addressed pixel is combined with the new information using the logic function specified by the write mode. Have a play with this by overwriting previous graphics, particularly using the XOR mode and observing the interesting effects.

The other five commands are:

```
¦CLEARINPUT
¦FRAME
¦COPYCHR
¦DUMP
¦LOAD
```

which I will deal with in order.

As the name probably suggests, CLEARINPUT clears the input buffer. Use it to clear any accidentally entered characters before accepting single character input. FRAME waits for the next frame flyback. Use it to give clean movements to your graphics. You can do this from BASIC simply by calling a firmware routine, but this instruction saves you having to remember the address (&BD19). Neither of these commands need any additional parameters - the remaining ones do.

COPYCHR will copy a specified number of characters from the screen into a string variable, starting at the current position of the text cursor and advancing the cursor as it does so. Before executing this command, you must set up a string variable containing x dummy characters, where x is the number of characters which you wish to copy. The command is then issued as:

```
¦COPYCHR,@a$
```

where a$ is the string variable previously set up. For example, to copy 5 characters from screen position 1,5 and print them at screen position 1,10:

```
a$='xxxxx' - sets up string
variable
LOCATE 1,5 - positions
cursor
¦COPYCHR,@a$ - gets
```

character into a$
LOCATE 1,10 - repositions the cursor
PRINT a$ - prints them

Of course, the string variable can have any legal name and the dummy characters may be anything you like, they will be lost anyway.

The last two commands are useful for saving and loading blocks of memory as a continuous tape record. They must be executed as:

¦DUMP,address,length
¦LOAD,address,length

Both parameters **must** be supplied.

Finally, we come to the program and how to get it up and running on your Amstrad.

First enter the program called POKERSX, then if you have a tape system, put a cassette in and position the tape ready for recording. Now RUN the program, and if all goes well the machine code will load and the program will then save it as RELOCODE.BIN. If you have made any mistakes in the DATA statements, the program should tell you which line is at fault. You can then correct it and try again. Once you have RELOCODE safely saved on tape, you may use it by including the short program GETRSX at the start of any of your programs in which you wish to use the new commands. You must, of course, make sure that there is a copy of RELOCODE on tape immediately following your program for GETRSX to load.

Operators of disc systems simply have to ensure that there is a disc installed before runnung POKERSX and that there is a copy of RELOCODE.BIN on the same disc as any program which uses it.

One final caution - although the program is completely relocatable, the operating system insists that any RSX's **must** lie within the central 32k of RAM, ie. between &4000 and &C000. This means in practice that if you have a program which sets HIMEM lower than around 17000 (an unlikely occurrence), then you cannot use GETRSX to install the extension program.

```
 5 'POKERSX program by John Wells 4/1/86
 10 MODE 1:top=HIMEM-330:MEMORY top-1:loc=0
 20 PRINT:PRINT"Entering machine code -"
 30 FOR i=1 TO 22:sum=0:FOR j=1 TO 15
 40 READ k:POKE top+loc,k:loc=loc+1:sum=sum+k:NEXT j
 50 READ k:IF k=sum THEN 70
 60 PRINT:PRINT"Checksum error in line"90+i*10:END
 70 NEXT i:PRINT:PRINT"The machine code has now been
    loaded."
 80 PRINT:PRINT"   Saving Binary code -":PRINT:SPEED
    WRITE 1
 90 SAVE"RELOCODE.BIN",B,top,330:LOCATE 1,24:END
100 DATA 221,110,0,221,102,1,229,221,225,1,96,0,9,229
    ,1,1666
110 DATA 57,0,9,221,117,87,221,116,88,1,4,0,9,221,117
    ,1268
120 DATA 90,221,116,91,1,128,0,221,9,227,221,117,29,2
    21,116,1808
130 DATA 30,225,1,103,0,9,229,221,225,1,35,0,9,229,1,
    1318
140 DATA 26,0,9,229,253,225,225,6,6,22,0,221,117,0,22
    1,1560
150 DATA 116,1,253,35,253,94,0,221,25,16,241,33,0,0,1
    ,1289
160 DATA 0,0,205,209,188,201,67,76,69,65,82,73,78,80,
    85,1478
170 DATA 212,67,79,80,89,67,72,210,70,82,65,77,197,77
    ,79,1523
180 DATA 86,197,77,79,86,69,210,80,76,79,212,80,76,79
    ,84,1570
190 DATA 210,68,82,65,215,68,82,65,87,210,68,85,77,20
    8,76,1666
200 DATA 79,65,196,0,0,0,0,0,0,24,30,0,24,33,0,451
210 DATA 24,58,0,24,89,0,24,92,0,24,95,0,24,98,0,552
220 DATA 24,101,0,24,104,0,24,41,0,24,64,205,9,187,56
    ,863
230 DATA 251,201,221,110,0,221,102,1,126,167,200,71,3
    5,126,35,1867
240 DATA 102,111,205,96,187,119,35,62,9,205,90,187,16
    ,244,201,1869
250 DATA 205,25,189,201,6,1,221,94,0,221,86,1,221,110
    ,2,1583
260 DATA 221,102,3,62,22,16,4,205,158,188,201,205,161
    ,188,201,1937
270 DATA 6,0,24,228,205,0,0,195,192,187,205,0,0,195,1
    95,1632
280 DATA 187,205,0,0,195,234,187,205,0,0,195,237,187,
    205,0,2037
290 DATA 0,195,246,187,205,0,0,195,249,187,221,126,0,
    230,3,2044
300 DATA 205,89,188,221,126,2,205,222,187,221,94,6,22
    1,86,7,2080
310 DATA 221,110,4,221,102,5,201,6,6,6,6,6,0,0,0,894
```

```
 1 'GETRSX programme by John Wells 6/1/86
 2 'Add these lines to the initialised section of an
   y
 3 'program using the extended commands.
 4 top=HIMEM-330:MEMORY top-1
 5 LOAD"relocode.bin",top
 6 CALL top,top
```

Tape subscribers please note that both POKERSX and GETRSX are already provided on this month's tape.

THE ENGLISH AMSTRAD USER

(Amstrad Computer User)

In view of the increased demand for this publication, Strategy Publications is now offering new 12 month subscriptions.

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An Alternative Printer?

by A.F. Ryan

If you are interested in doing a significant amount of word processing on your Amstrad and the quality of the printed output is important, then the Juki 2200 portable typewriter could be your answer.

Although sold basically as a typewriter, the Juki 2200 (also known as the Sierra\\Matic 2200) is a dual-purpose machine since it incorporates its own interface port which can be either Centronics parallel or RS232c, as specified when you buy.

The major advantage is that you get a printer capable of high quality printing which can be detached from the Amstrad and used as a well-configured typewriter. The disadvantages are that, as a printer, it is slow (10 characters per second) and like all daisywheel printers it is unsuitable for graphics.

As a typewriter, the 2200 is fully configured with such facilities as automatic centring, auto return, auto underlining, auto correction for up to 20 characters and decimal tabulations. Both "lift-off" and "cover-up" correction tapes are available according to whether you use carbon tapes or nylon ribbons. Carbon tapes produce the most professional-looking results and perfect corrections, but nylon ribbons are cheaper and better suited to most computer-driven uses where correcting "on paper" is unlikely to be required.

Used as a computer printer, the 2200 offers a 2k buffer and bi-directional printing at the rather slow speed of 10 cps. However, if it is full professional typewriter quality printing you want or need, this is what you get. Daisywheels are available in half a dozen typefaces each having a 92-character set. Pitch can be set to 10, 12 or 15 characters to the inch (15 cpi is only suitable for the Mikron typeface). It prints at 6 lines to the inch and 1, 1.5 or 2 spaces can de set either by manual switch or by escape sequence, as can the pitch.

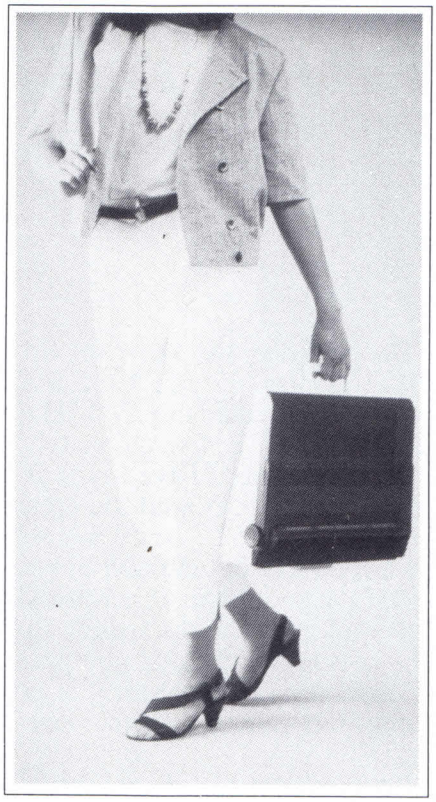
Although described as portable, the Juki 2200 might be better described as "luggable". It measures 16 x 13.5 x 5 inches (408 x 343 x 127 mm) and weighs 15.8 lbs (7.2 kg). There is a

fold-away carrying handle, and the cover is a clip-on style in smokey perspex, entirely suitable as a dust cover on your desk or computer trolley but not really adequate for use on a genuine portable. It is a well-finished, good looking machine.

It comes complete with a 3 meter power lead and an excellent instruction booklet, profusely illustrated and well written in clear "unaccented" English, which explains every feature of the machine from unpacking onwards. Most of the booklet deals with the use of the 2200 as a typewriter, but the section dealing with the use as a printer is completely adequate and includes all the escape sequences and the ASCII codes for all possible characters.

A notable absentee from the codes is any sort of top-of-form skip, but this is due to the lack of tractor feed - paper feed is by pressure roller only.

When I started to use my own Juki 2200, I found it a little strange at first as I wished to use continuous A4 paper. However, in practice, I find that continuous paper will track quite true - for a dozen pages anyway - provided care is taken with the initial line-up



and with ensuring a straight line feed from paper-box to typewriter. I use Amsword (Soft 164) and this has allowed me to set up escape sequences for skipping various numbers of lines. The control characters for these sequences are then easy to use to trim the spacing to the required size at the end of each page.

For my own needs I have found the 2200 very satisfactory, but with some limitations. Like other daisywheel printers, it cannot print graphics and if used for Basic program listings, it cannot handle any text line more than 90 characters long (or 108 characters at 12 cpi, or 135 at 15 cpi), which is a nuisance if you like to pack your lines to the limit.

As A.F. Ryan is a subscriber in Wellington, New Zealand we checked the availability of the Juki range in Australia. The 2200 is known as the Sierra\\Matic, costs around $595, and is distributed by Stott and Underwood: Sydney (02) 929 0566, Melbourne (03) 329 5366, Brisbane (07) 391 8144, Adelaide (08) 223 3700 and Perth (09) 328 7851. Other Juki printers are available from Mitsui Computer Limited: NSW (02) 451 7711, Vic (03) 690 6722 and QLD (07) 368 1636.

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Telephone Number.....
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Achieved (date) .....Game lasted (mins.secs).....
Signed .....

THIS NEXT PART MUST BE COMPLETED

Witness' Name .....
Address .....
Telephone Number.....
Occupation .....
I confirm that the above claimed score is accurate and genuine
Signed .....

Post this form along with your tips for playing the game to:
Amstrad Achievers, The Amstrad User, Suite 1, 33 The Centreway, Blackburn Road, Mt. Waverley, Victoria 3149.

Cassette Box Label Printer

by L.J. Allen

This program is designed to be used in conjunction with the |SCRDMP utility by Brendan Ross (October '85). It enables you to make up a label in either Mode 1 or 2 in several different styles, including enlarged or slanted letters. After printing the title(s), there is an option to add text.

The program has been set up to work with an Epson compatible NLQ printer. If you have a different type of printer, it may be necessary to alter line 520. The variable 'vpl' in line 20 controls the position of the right hand cutting guide line.

The best paper I have found is the fancy coloured letter paper. This is stiff enough to hold the creases but does not cause trouble in the printer.

I am aware that the text entering system is not perfect, but it does what I want it to do. After pressing ENTER, if you you move the joy-stick up or down, the strings already entered will be scrolled through the bottom window. If you press [you have to re-enter that string (a second copy of that string is printed above so you can use the copy cursor). If you hit any other key and it will start a new string.

Remember to load and run |SCRDMP (called |SCNDMP on the October '85 tape) before loading this program. We noticed that during testing of the program, lines which we wished to change, for example, move along another space, did not always fully clear. Unfortunately, time was against us and did not allow our normal 'destructive' testing. However, we can guarantee that the main segment of the program works, as the sample screen dump below illustrates - Ed.

Screen Dump produced on a Seikosha SP-1000A (Reduced by 20%)

```
10 REM CASSETTE BOX LABEL PRINTE
   R. By L.J.Allen
20 CLEAR:INK 0,13:INK 1,6:INK 2,
   0:BORDER 10:DIM clval(30):DIM
    text$(50):indc$="12345678901
   23456789012345":vpl=319
30 MODE 1:PLOT 0,0,2:MOVE 98,304
   :TAG:PRINT"CASSETTE BOX LABEL
    PRINTER";:TAGOFF
40 LOCATE 7,7:PRINT CHR$(22);CHR
   $(1);:PRINT"CASSETTE BOX LABE
   L PRINTER";:PRINT CHR$(22);CH
   R$(0);:LOCATE 12,13:PEN 2:PRI
   NT"By L.J.Allen":LOCATE 6,17:
   PRINT"Use :SCRDMP Utility by
   B.Ross":PEN 1
50 LOCATE 2,20:INPUT"Do You want
    MODE 1 or 2 ";mde:IF mde<1 O
   R mde >2 THEN 50
60 MODE mde:INK 1,0:IF mde=1 THE
   N WINDOW#1,1,20,1,14:WINDOW#0
   ,1,40,15,25:indlg=15 ELSE WIN
   DOW#1,1,40,1,14:WINDOW#0,1,80
   ,15,25:indlg=25
70 PLOT 0,399,1:DRAW 0,390:PLOT
   2,349:DRAW 4,349:PLOT 0,250:D
   RAW 0,240
80 PLOT vpl,399:DRAW vpl,390:PLO
   T vpl-4,349:DRAW vpl-2,349:PL
   OT vpl,250:DRAW vpl,240
90 PLOT 2,313:DRAW 4,313:PLOT vp
   l-2,313:DRAW vpl-4,313
100 PRINT" Large Title  L ,  Doub
   le lines D          Large Slant
   ed Title S"
110 ty$=INKEY$:ty$=LOWER$(ty$):IF
    ty$="l" OR ty$="d" OR ty$="s
   " THEN CLS:GOTO 120 ELSE 110
120 tlstart=8:PRINT"
      ";:PRINT LEFT$(indc$,indlg)
   :INPUT" ENTER TITLE ";tl$:INP
   UT" No of spaces in front Tit
   le ";sp:IF ty$="s" AND sp<1 T
   HEN PRINT"Slant needs a Space
   !":GOTO 120
130 IF sp>0 AND mde=1 THEN tlstar
   t=tlstart+(sp*20) ELSE IF sp>
   0 AND mde=2 THEN tlstart=tlst
   art+(sp*12)
140 lg=LEN(tl$):IF lg+sp>indlg TH
   EN PRINT"Title Length Wrong!"
   :PRINT CHR$(7);:GOTO 120 ELSE
    MOVE tlstart,345:GOSUB 660
150 PRINT" Is that O.K.? (y/n)"
160 a$=INKEY$:a$=LOWER$(a$):IF a$
   ="n" THEN tl$=SPACE$(lg):MOVE
    tlstart,343:GOSUB 660:CLS:GO
   TO 120 ELSE IF a$="y" AND (ty
   $="l" OR ty$="s") THEN PRINT"
    Please WAIT":GOTO 220 ELSE I
   F a$="y" AND ty$="d" THEN 180
170 GOTO 160
180 tlstart2=8:PRINT"
         ";:PRINT LEFT$(indc$,i
   ndlg):INPUT" ENTER 2nd TITLE
   ";tl2$:INPUT"No of spaces in
   front Title ";sp2:IF sp2>0 AN
   D mde=2 THEN tlstart2=tlstart
   2+(sp2*12) ELSE IF sp2>0 AND
   mde=1 THEN tlstart2=tlstart2+
   (sp2*20)
190 lg2=LEN(tl2$):IF lg2+sp2>indl
   g THEN :PRINT"Title Length Wr
   ong ":PRINT CHR$(7);:GOTO 180
    ELSE MOVE tlstart2,329:GOSUB
    670:PRINT" Is that O.K.? (Y/
   N)"
200 a$=INKEY$:a$=LOWER$(a$):IF a$
   ="n" THEN tl2$=SPACE$(lg2):MO
   VE tlstart2,329:GOSUB 670:CLS
   :GOTO 180 ELSE IF a$="y" THEN
    230
210 GOTO 200
220 pixa=8:pixu=345:GOSUB 700
230 MOVE tlstart,280:GOSUB 660:pi
   xa=8:pixu=280:GOSUB 700:PRINT
    CHR$(7);
240 IF ty$="d" THEN MOVE tlstart2
   ,240:GOSUB 670
250 PRINT"Do you want to add Sub
   Title?"
260 a$=INKEY$:a$=LOWER$(a$):IF a$
   ="n" THEN 310 ELSE IF a$="y"
   THEN 270 ELSE 260
270 tlstart=8:PRINT"
         ";:PRINT LEFT$(indc$,in
   dlg):INPUT" Enter Sub Title "
   ;tl$:INPUT" No of spaces in f
   ront Title ";sp:IF sp>0 THEN
   tlstart=tlstart+(sp*12)
280 lg=LEN(tl$):IF lg+sp>indlg TH
   EN PRINT"Title Length Wrong "
   :PRINT CHR$(7);:GOTO 270 ELSE
    MOVE tlstart,210:GOSUB 660
290 PRINT" Is that O.K.? (y/n)"
300 a$=INKEY$:a$=LOWER$(a$):IF a$
```

```
    ="n" THEN t1$=SPACE$(20):MOVE
     4,230:GOSUB 660:GOTO 270 ELS
    E IF a$="y" THEN 310 ELSE 300
310 PRINT" Please Wait --":FOR d1
    =1 TO 500:NEXT:CLS:MOVE 0,134
    :DRAW 0,128:DRAW 4,128:MOVE v
    pl,134:DRAW vpl,128:DRAW vpl-
    4,128:ORIGIN 0,0:|SCRDMP:PRIN
    T CHR$(7);:IF a$="r" THEN 500
320 PRINT" To Print Text T,     Ed
    it Text  E,          New Label N
    ,       Reprint Label R,
    Stop S"
330 dup=0:a$=INKEY$:a$=LOWER$(a$)
    :IF a$="n" THEN 20 ELSE IF a$
    ="t" THEN 340 ELSE IF a$="s"
    THEN END ELSE IF a$="r" THEN
    dup=1:GOTO 310 ELSE IF a$="e"
     THEN text$(vh)="":GOTO 630 E
    LSE 330
340 IF dup=1 THEN GOSUB 680:GOTO
    500
350 CLS:PRINT" Type in the text,
    and Press ENTER.       To stop
     Enter  STOP.      After you h
    ave Entered the 1st. string y
    ou can use the Joy Stick to s
    croll through the text   alre
    ady entered."
360 PRINT" If you press  [, you c
    an Edit that      string BUT y
    ou must move the Copy cursor
    over any part of the existing
     string   you want":PRINT"
          ( Press Space )"
370 a$=INKEY$:IF a$="" THEN 370
380 GOSUB 680
390 v=0:vh=0
400 a$=INKEY$:IF a$<>"" THEN 400
    ELSE CLS:text$(vh)="":nbs=0:G
    OSUB 690:GOTO 450
410 a$=INKEY$:IF a$<>"" THEN 410
420 a$=INKEY$:IF a$="" OR a$="
     " THEN 420 ELSE IF a$="
                              " AND v>
    0 THEN v=v-1:CLS:PRINT text$(
    v): GOTO 420 ELSE IF A$="
                        " AND TEXT$(V
    )<>"" THEN v=v+1
425 CLS:PRINT text$(v) ELSE IF a$
    ="                          " THEN P
    RINT CHR$(7);: GOTO 410
430 IF a$="["OR a$="{" THEN 570 E
    LSE IF a$="" OR a$="
                         " OR a$="


                  " THEN 420
440 IF a$=" " THEN nbs=0 ELSE 470
450 IF a$=" " THEN nbs=nbs+1:PRIN
    T" ";:GOSUB 690
460 a$=INKEY$:IF a$=" " OR a$=""
    THEN 450 ELSE text$(vh)=text$
    (vh)+SPACE$(nbs)
470 IF ASC(a$)>239 THEN 480 ELSE
    text$(vh)=text$(vh)+a$
480 CLS:LOCATE 1,1:PRINT text$(vh
    );:INPUT"",txpr$:text$(vh)=te
    xt$(vh)+txpr$:IF UPPER$(text$
    (vh))="STOP" THEN GOTO 500
490 PRINT#3,text$(vh):v=vh:v=vh+1
    :text$(vh)="":IF vh>39 THEN G
    OTO 500 ELSE CLS :GOSUB 690:G
    OTO 420
500 CLS#3:PRINT#3,"   Position Pa
    per in Printer":PRINT#3," P t
    o Print Text, M return to Men
    u"
510 a$=INKEY$:a$=LOWER$(a$):IF a$
    ="m" THEN 560 ELSE IF a$="p"
    THEN 520 ELSE 510
520 PRINT#8,CHR$(27)+CHR$(64):PRI
    NT#8,CHR$(27);"1";CHR$(2);:PR
    INT#8,CHR$(27);"n";:WIDTH 37
530 FOR xy=0 TO vh-1
540 PRINT#8,text$(xy):NEXT xy
550 PRINT#8,CHR$(27)+CHR$(64)
560 WINDOW#0,1,80,15,25:CLS:GOTO
    320
570 LOCATE#3,1,25:PRINT#3,text$(v
    ):WINDOW#0,1,37,15,25:LOCATE
    1,9:nbs=0:text$(v)=""
580 a$=INKEY$:IF a$=" " THEN nbs=
    nbs+1:PRINT" ";:GOSUB 690:GOT
    O 580 ELSE IF a$=""THEN 580
590 IF nbs>0 THEN text$(v)=text$(
    v)+SPACE$(nbs)
600 IF ASC(a$)>239 THEN 610 ELSE
    text$(v)=text$(v)+a$
610 LOCATE 1,9:PRINT text$(v);:IN
    PUT"",edtext$
620 text$(v)=text$(v)+edtext$
630 GOSUB 680:FOR q=0 TO vh-1:PRI
    NT#3,text$(q):NEXT q:v=vh-1:G
    OSUB 690
640 IF INKEY$<>""THEN 640 ELSE 42
```

```
    0
650 STOP
660 TAG:FOR pt=1 TO lg:PRINT MID$
    (tl$,pt,1);:MOVER 4,0:NEXT:TA
    GOFF:RETURN
670 TAG:FOR pt=1 TO lg2:PRINT MID
    $(tl2$,pt,1);:MOVER 4,0:NEXT:
    TAGOFF:RETURN
680 PAPER#0,3:CLS#0:PAPER#0,0:WIN
    DOW#0,1,37,15,25:CLS#0:WINDOW
    #3,1,37,15,22:WINDOW#0,1,37,2
    3,25:RETURN
690 xx=POS(#0):yy=VPOS(#0):LOCATE
     xx,yy:PRINT CHR$(143);:LOCAT
    E xx,yy:RETURN
700 WHILE pixa<315:FOR doub=0 TO
    14 STEP 2:clval(doub)=TEST(pi
    xa,pixu-doub):NEXT doub
710 PLOT pixa,pixu-2,clval(0):IF
    ty$="s" AND mde=1 THEN pixs=p
    ixa-2 ELSE IF ty$="s" AND mde
    =2 THEN pixs=pixa-1 ELSE pixs
    =pixa
720 FOR doub= 4 TO 28 STEP 4:PLOT
     pixs,pixu-doub,clval(doub/2)
    :PLOT pixs,pixu-doub-2,clval(
    doub/2):IF ty$="s" AND mde=1
    THEN pixs=pixs-2 ELSE IF ty$=
    "s" AND mde=2 THEN pixs=pixs-
    1
730 NEXT doub
740 IF mde=1 THEN pixa=pixa+2 ELS
    E pixa=pixa+1
750 WEND:PLOT 0,0,1:RETURN
760 END
```


Fed up with loosing your magazine?
Tired of punching holes in the listings?

The Amstrad User Binder could solve your problems.

See Page 14 for further details.

Amsfile - Part Two

by Tony Blakemore

In January, Tony obviously went somewhere else because we missed Part Two of Amsfile - a mailing list for the Amstrad.

Now that the holiday season is over (for most people) we will continue from Part One which set up the introduction screen, dimensioned the strings and printed the menu, and now tackle the loading and saving routines.

To make Amsfile more versatile, options are provided for both tape and disc or either (this is particularly for that 'ancient' device known as the CPC 464).

To enable the routines to be tested, the program below produces a dummy data file. Save the program as "LOADTEST". Run the program and it will produce a small file called "AMSTEST". This is the one we will use for the test.

```
10    OPENOUT "AMSTEST"
20    FOR a = 1 TO 20
30    WRITE #9,"FILE"+STR$(A)
40    NEXT a
50    CLOSEOUT
```

LOADING AND SAVING "AMSTEST"

HOW IT WORKS

Load old file (Subroutine 1000)

400 Returns a value from i$ of the menu option chosen. VAL changes the string to a numeric expression and ON VAL sends the program to the required routine.

1000 Ensures that the pen does not flash and labels the option using Menu1$.

1010 Gives option of tape or disc.

1030 Checks for no key pressed.

1040 Option to return to menu if wrong selection is pressed.

1050 If any key other than 1 or 2 is pressed, returns to line 1030.

1060 Tape option. &BB18 direct ROM call waits for any key to be pressed.

1070 Disc option.

1080 Message to let you know something is happening. CHR$(24) inverse command. Must also be turned off at the end of message.
1090 Opens file "AMSFILE". The '!' supresses tape messages.
1100 Inputs from #9 (Disc/Tape) FILENO which is used to ensure the correct amount of files are input.
1110 Sets up loop using FILENO.
1120 Inputs files. LINE INPUT allows use of commas in file information. If only INPUT is used, the files will be broken up every time the disc finds a comma.
1130 Closes file and return to Menu.

Save new file (Subroutine 6000)

In essence, the same as loading but with the commands reversed. Line 6040 should be entered as shown and next month the subroutine will be defined with a line number. When testing the program at this stage, do not answer "Y" to the request 'DO YOU WISH TO SORT FILE' as an error will be produced and the program will stop. If it does happen then just type GOTO 190 and you will return to the menu.

OPERATING INSTRUCTIONS

Save the program as "AMSFILE2" and if you have a CPC464 with disc, it must be saved using the 'a' option, ie. SAVE "AMSFILE",a. Now merge to the first part of the program and we are ready to test it. Run "AMSFILE and select option 1. The dummy file will now load. Break the program and type:

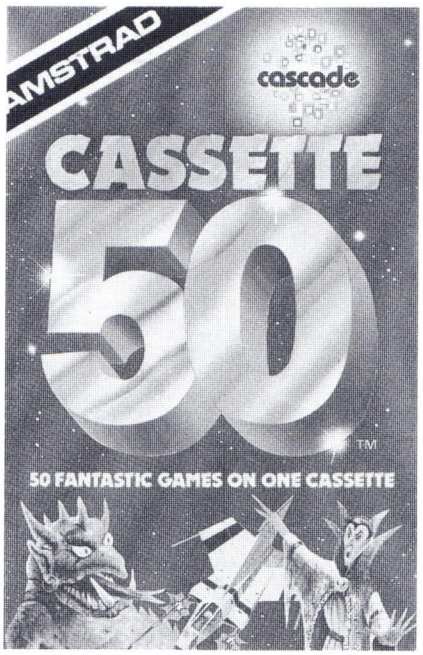
FOR a = 1 TO 20: PRINT FILE$(a):NEXT a

You will now see 20 files printed: FILE1, FILE2 etc. If not then the programs have not been entered correctly. Back to the drawing board!!

To test the save routine, load the file using option 1. When you return to the menu, select option 6. Press "N" to the sort request and the file will now save.

Next month we will set up the main body of the program.

```
 400 ON VAL(i$) GOTO 1000,2000,300
     0,4000,5000,6000
 997 '
 998 'LOAD FILE FROM DISC/TAPE
 999 '
1000 CLS:PEN 2:LOCATE 11,1:PRINT m
     enu1$
1010 LOCATE 11,4:PRINT "LOAD DISC
     OR TAPE."
1020 LOCATE 7,6:PRINT "PRESS (1) T
     APE OR (2) DISC"
1030 I$=UPPER$(INKEY$):IF I$="" TH
     EN 1030
1040 IF I$="M" THEN 190
1050 IF ASC(I$)<49 OR ASC(I$)>50 T
     HEN 1030
1060 IF I$="1" THEN |TAPE:LOCATE 5
     ,12:PRINT CHR$(24);"*** PRESS
      PLAY THEN ANY KEY***";CHR$(2
     4):CALL &BB18
1070 IF I$="2" THEN |DISC
1080 LOCATE 5,12:PRINT CHR$(24);"
     AMSTEST LOADING PLEASE WAIT.
     ";CHR$(24)
1090 OPENIN "!AMSTEST"
1100  INPUT #9,FILENO
1110 FOR A=1 TO FILENO
1120 LINE INPUT #9,FILE$(A):NEXT A
1130 CLOSEIN:GOTO 190
5997 '
5998 ' SAVE FILE TO DISC/TAPE
5999 '
6000 CLS:PEN 2:LOCATE 11,1:PRINT m
     enu6$
6010 LOCATE 4,4:PRINT "DO YOU WISH
      TO SORT FILE (Y)es (N)o"
6020 I$=UPPER$(INKEY$):IF I$="" TH
     EN 6020
6030 IF I$="M" THEN 190
6040 IF I$="Y" THEN GOSUB 7000'(SO
     RT ROUTINE)
6050 LOCATE 4,4:PRINT "        LOA
     D DISC OR TAPE          "
6060 LOCATE 7,6:PRINT "PRESS (1) T
     APE OR (2) DISC"
6070 I$=UPPER$(INKEY$):IF I$="" TH
     EN 6070
6080 IF I$="M" THEN 200
6090 IF ASC(I$)<49 OR ASC(I$)>50 T
     HEN 6070
6100 IF I$="1" THEN |TAPE:LOCATE 5
     ,12:PRINT CHR$(24);"PRESS PLA
     Y & REC  THEN ANY KEY";CHR$(2
     4):CALL &BB18
6110 IF I$="2" THEN |DISC
6120 LOCATE 5,12:PRINT CHR$(24);"
     AMSTEST  SAVING  PLEASE WAIT.
     ";CHR$(24)
6130 OPENOUT "!AMSTEST"
6140 PRINT #9,FILENO
6150 LOCATE 4,14:PRINT "AMSTEST CO
     NSISTS OF ";FILENO;" RECORDS"
6160 FOR A=1 TO FILENO
6170 WRITE #9,FILE$(A):NEXT A
6180 CLOSEOUT:GOTO 190
```



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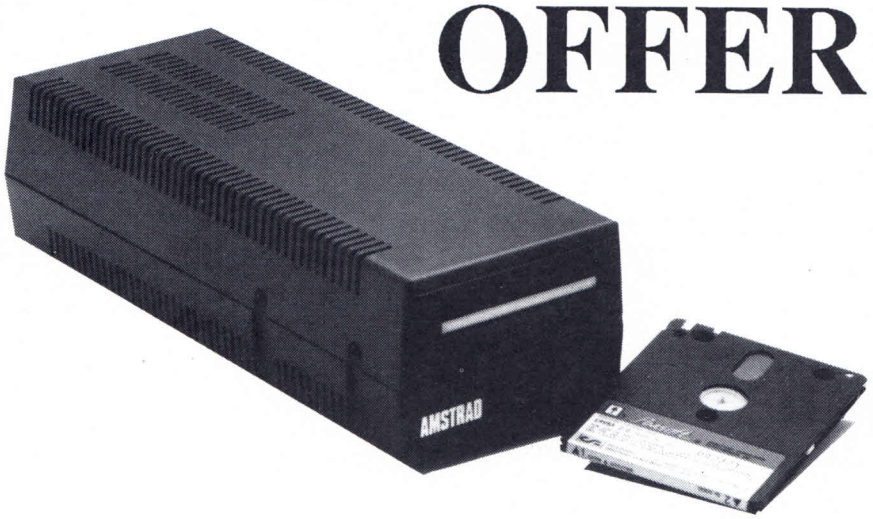

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Random Numbers - Part Two

by Arthur Harris

Having generated some random numbers, it is advisable to test them statistically to find out how good they are, before using the particular generator for any serious purpose. The question is, "What tests do we use, and how do we interpret the results?"

There are many tests available and a statistician can advise on them. I will cover only the most common ones here.

The Serial Test

This test checks the degree of randomness between successive numbers to make sure that each number is unrelated to the ones previously generated. Of course, in a computer, there must be a relationship but the modification to the congruential generator shown in (b) of that description makes the relationship as remote as possible and as difficult as possible to determine.

The operation of the serial test is that it sets up a 10 * 10 array and assigns the output from the generator to one element of the array by using the generated numbers to determine the co-ordinates of the element into which this generation will be tallied. The range to determine the co-ordinates must be 0 to 9 for each number generated and the tally in each element should be 1/100 of the number of times this process is repeated.

Theoretically, for a large number of generations, each element of the array should contain exactly N/100 as its tally. Obviously, since there is no perfect random number generator, the tallies will not be exactly equal. The result should reveal no patterns. The main diagonals should not be significantly different from the corners. The left side tallies should not be significantly different from the right hand side tallies. No one column or row should differ greatly from any other row or column. This is demonstrated by Program Listing 3.

The CHI Square Test

What constitutes a significant difference? The Chi Square test is a measure of the difference between experimental and theoretical (or expected) values. The test squares the difference between the actual and the expected values, sums these squares and finds the average. The result is known as a chi square value. If this value is less than some value found in a table of chi square values, opposite one less than the number of values tested, then the result is assigned a confidence level of x%, where x is the figure at the head of the column in which the value is located.

As an example, in one run of Program 3, I obtained a value of 122. Since I am testing 100 values (the number of elements in the array), locate 100 in the extreme left column and then locate the number just greater than 122 in that row. This is 124.3 int he column headed 5. This indicates that you can only state that the generated numbers are truly random with a 5% level of confidence that it is true. To be strictly correct, linear interpolation should be used to find the value applicable to 99 degrees of freedom. This gives a chi square value of 123.2 and does not change the result in this case.

Program 4 also uses a Chi Square test.

The Frequency Test

In this test, you dimension an array for 10 elements, translate the results of generation into 0 to 9 range intervals, tally each of N random numbers and then tally the generator results into their corresponding cells.

The expected tally inn each cell is N/10. Program Listing 4 demonstrates this type of test and uses a chi square test to evaluate the results.

The Number-of-Runs Test

This test is more complicated. It checks for results that generate too many numbers that successively increase or decrease, before changing direction. The test examines a sample of successive outputs, tallying the number of increasing and decreasing runs and categorising them by length. It then compares the occurrences of specific increasing and decreasing run lengths against expected data using the chi square test.

The unusual looking formulae in lines 980, 1000, 1020 and 1040 of Program Listing 5 can be found in texts on advanced statistics. The complete test is demonstrated in Program 5 and, again, the chi square test is used to find the significance of the results.

Other Tests

A gap test measures the length of runs between the successive generations of the same number. The chi square test is used to find the confidence level for stating that the generated numbers are truly random.

The poker test examines hundreds of thousands of groups of five generated numbers. "Hands" are assessed and tallied on the basis of the occurrence of poker hands, i.e. one pair, two pairs, three of a kind, etc. Probability calculations are used to obtain the expected values. The chi square test is then used to evaluate the results.

Of course the standard tests of mean and standard deviation can also be applied.

CONCLUSION

The random number generators in ROM in most microcomputers are thoroughly tested and thus can be used with a high degree of confidence.

If you wish to substitute another generator for the one in ROM, it should be subjected to as many tests as possible before you accept that it does, in fact, produce quality random numbers and is better than the one in ROM.

Further information on random number generation can be found in "Introduction to Mathematical Statistics" by Paul G Hoel: John Wiley & Sons, NY, 1963. ◊◊◊

```
  1 REM ** This is Program Listing 1 **
  5 z$="####"
 10 CLS:PRINT #8,"Simple random number
    test";CHR$(13);CHR$(13)
 20 LOCATE 1,5:PRINT CHR$(20):INPUT "En
    ter 2 start numbers (less than 256)
    ";a,b
 30 IF a<1 OR a>255 OR b<1 OR b>255 THE
    N PRINT"Out of range":FOR i=1 TO 10
    00:NEXT i:GOTO 20
 40 n=0:d=a:e=b
 50 c=a+b
 60 IF c>255 THEN c=c-256*INT(c/256)
 70 PRINT #8,c;
 80 n=n+1
 90 a=b:b=c
100 IF a=d AND b=e THEN PRINT #8," ":GO
    TO 120
110 GOTO 50
120 PRINT #8,CHR$(10);CHR$(10);"Using "
    ;d;" and ";e;" generated ";n;" numb
    ers"
130 PRINT "Try again (Y/N) ?";
140 q$=INKEY$:IF UPPER$(q$)="Y" THEN 20
     ELSE IF UPPER$(q$)<>"N" THEN 140
150 PRINT #8,"End of trial.  Thank you.
    ":END
199 REM ** This is Program Listing 2 **
200 MODE 2
210 LOCATE 1,5:PRINT CHR$(20):INPUT "Nu
    mber of trials ?";n
220 s=100*TIME/300:s=100*(s-INT(s))
230 s=s*s
240 IF s>255 THEN s=s-256*INT(s/256)
250 t=TIME/300
260 FOR i=1 TO n
270 PRINT #8,INT (s);
280 s=3*s+13
290 IF s>255 THEN s=s-256*INT(s/256)
300 NEXT i:PRINT #8," "
310 e=TIME/300:PRINT #8,"Start at ";t;"
     seconds and End at ";e;" seconds"
320 END
399 REM ** This is Program Listing 3 **
400 MODE 2
410 LOCATE 1,5:PRINT CHR$(20):INPUT "To
    tal number for test ?";n
420 DIM a(10,10)
430 FOR m=1 TO n
450 i=10*RND:j=10*RND:a(i,j)=a(i,j)+1
460 NEXT m
470 e=n/100
480 FOR i=1 TO 10
500 FOR j=1 TO 10:PRINT #8,a(i,j);
510 c=c+(a(i,j)-e)^2/e
520 NEXT j:PRINT #8," ":NEXT i
530 PRINT #8," ":PRINT #8," ":PRINT #8,
    "Chi-square = ";c
540 PRINT #8,"Number of trials = ";n
550 PRINT #8,"Expected value = ";e:END
599 REM ** This is Program Listing 4 **
600 MODE 2:RANDOMIZE TIME
610 DIM k(10)
620 LOCATE 1,5:PRINT CHR$(20):INPUT "Ho
    w many trials ? ";n
630 FOR i=1 TO n
640 j=10*RND
650 k(j)=k(j)+1
```

```
670 NEXT i
680 e=n/10
690 c=0
700 FOR i=1 TO 10
710 c=c+(k(i)-e)^2/e
720 NEXT i
730 FOR k=1 TO 10:PRINT #8,k(k);:NEXT k
    :PRINT #8," "
740 PRINT #8,"Expected value = ";e
750 PRINT #8,"Chi-square = ";c
760 PRINT "Want to try again (Y/N) ?";
770 q$=INKEY$:IF UPPER$(q$)="Y" THEN 62
    0
780 IF UPPER$(q$)<>"N" THEN 770
790 PRINT #8,"End of trial. Thank you."
    :END
809 REM ** This is Program Listing 5 **
810 CLEAR:MODE 2
820 LOCATE 1,5:PRINT CHR$(20):INPUT "Va
    lue for N ";n
830 PRINT #8,"The program accommodates
    runs of length 1 to 10 and 10+"
850 FOR i=1 TO 1000:NEXT i
860 DIM t(11),r(11)
870 i=0
880 i=i+1
890 IF i>10 THEN 1060
910 ON i GOTO 980,1000,1020
920 j=i+3
930 FOR k=(j-1) TO 1 STEP -1
940 j=j*k
950 NEXT k
960 GOTO 1040
980 t(1)=(5*n+1)/12
990 GOTO 880
1000 t(2)=(11*n-14)/60
1010 GOTO 880
1020 t(3)=(19*n-47)/360
1030 GOTO 880
1040 t(i)=(2*(i*i+3*k+1)*n-(i*i*i+3*i*i-
     i*4))/j
1050 GOTO 880
1060 s=0
1070 FOR k=1 TO 10
1080 s=s+t(k)
1090 NEXT k
1100 t(11)=(2*n-1)/3-s
1110 k=1
1120 l=1
1130 r=0
1140 FOR i=1 TO n
1150 x=2*RND
1160 ON k GOTO 1170,1260
1170 IF x>l THEN 1210
1180 r=r+1
1190 l=x
1200 GOTO 1320
1210 IF r>11 THEN r=11
1220 r(r)=r(r)+1
1230 r=1
1240 k=2
1250 GOTO 1190
1260 IF x>=1 THEN 1180
1270 IF r>11 THEN r=11
1280 r(r)=r(r)+1
1290 r=1
1300 k=1
1310 GOTO 1190
1320 NEXT i
1330 PRINT #8,"Experimental      Theoret
     ical"
1340 FOR i=1 TO 11
1350 PRINT #8,"R = ";r(i);:PRINT #8,TAB(
     20);:PRINT #8,"T = ";t(i)
1360 NEXT i
1400 MODE 2:z$="##.######"
1410 LOCATE 1,5:PRINT CHR$(20):INPUT "Ho
     w many numbers ?";n
1420 INPUT "What number to use for a see
     d ?";s
1430 PRINT #8,s/32768;
1440 FOR i=1 TO n-1
1450 GOSUB 1600
1460 PRINT #8,s/32768;
1470 NEXT i
1500 END
1599 REM ** This is Program Listing 6 **
1600 t=s*4
1610 IF t>32767 THEN t=t-32768*INT(t/327
     68)
1620 u=(NOT t AND s) OR (NOT s AND t)
1630 IF u<0 THEN u=-1*u
1640 IF u>32767 THEN u=u-32768*INT(u/327
     68)
1650 t=u*2
1660 IF t>32767 THEN t=t-32768*INT(t/327
     68)
1670 v=(NOT u AND t) OR (NOT t AND u)
1680 IF v<0 THEN v=-1*v
1690 IF v>32767 THEN v=v-32768*INT(v/327
     68)
1700 s=INT (v/2)
1710 RETURN
```

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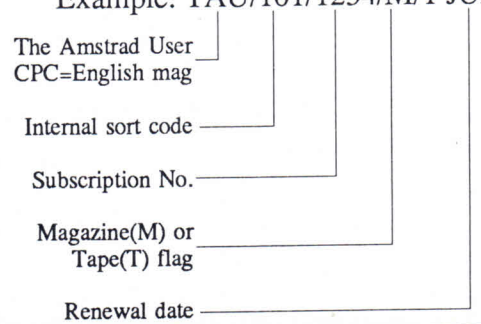

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