Colourdump 2

AMSTRAD CPC DISC

COLOURDUMP 2

Written by Richard Moss

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Distributed by M.J.C. Supplies

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INTRODUCTION

When the Amstrad CPC range was first launched, colour printers were very expensive and it could safely be assumed that virtually nobody would add one to their relatively cheap Arnold. No software 'printer drivers' were included in programs as the cost of development could not be justified for such a small market.

ColourDump was originally written to allow previously unavailable colour screen dumps from the Amstrad CPC range by using up to 4 single-coloured ribbons on an Amstrad DMP-2000 or other Epson Compatible printer. Using different shading techniques a total of 16 'colours' could be represented on paper.

Later on, however, Star Micronics produced a budget colour printer which brought colour printing to the price range accessible to most Amstrad owners. The only trouble was that no software could control this machine properly. M.J.C. Supplies were selling these printers to Amiga and Atari ST owners in large quantities, and having read about ColourDump in Amstrad Action contacted Richard Moss to see if his program could be amended for the Star LC-10 Colour printer.

The result of this collaboration is ColourDump 2.

BEFORE YOU START

Although ColourDump 2 was originally written for Amstrad DMP2000 users, best results are obtained from the Star LC-10 Colour printer. It uses a four colour ribbon, which it combines to give 7 "standard" colours, although Colour Dump 2's shading routines give many, many more.I t is possible to get a very close approximation of the described colour to that on paper. The LC-10 Colour printer also has a good text quality in plain black or any of seven colours and at around £250 should be considered by anybody looking to add a printer to an Amstrad CPC. These are often advertised in the pages of Amstrad Action and Amstrad Computer User by M.J.C. Supplies.

ColourDump 2 is still compatible with the Amstrad DMP2000, and other Epson compatible printers. These cover most of the 9 pin dot matrix market and include the Amstrad DMP2160, DMP3000, DMP3160, DMP3250, Star LC-10 (Mono and Colour), Citizen 120-D and Panasonic KXP1080/KXP1081. The list is virtually endless, but when looking for a printer the phrase Epson Compatible is a minimum requirement.

If you are unsure as to which printer will best suit your needs, M.J.C. Supplies are happy to offer advice. Their telephone number is given at the beginning of this manual.

ColourDump 2 will take any standard 17k screen file and allow you to print it out in the colours you choose.

The Advanced OCP Art Studio is generally regarded as the best graphics program for the CPC6128, and this will produce a compatible file, provided you do not save it as a compressed file and you do not save the palette with the picture.

You may find it best to experiment for a while and create one palette of colours which work best with ColourDump 2 and keep a note of which ink/colour combinations are used. This will save time later on trying to duplicate screen colours with a different palette everytime.

The AMX Art program, originally distributed by AMS but now handled by Database Software, does not use 'standard' screen files, but has a utility program which will convert one of its own format files to a standard screen file which is compatible.

Some games, especially the older ones not so heavily protected, actually store their loading screen on disc in a standard format. The loader is sometimes an unprotected basic program, and information can be obtained from this as to the ink/colour combinations used so that you can print these out.

One example is Database Software's Fun School programs (not Fun School 2). If you load and list the loading program called DISC you will be able to read off the combinations (see line 60) and filename BALLOONS.BIN. (line 80).

Colour Dump 2 also has an unprotected loader from which you can see how to match the screen colours from the Mandelbrot picture with their colour numbers on paper.

We have not been able to print out screen files saved with Romantic Robot's Multiface 'back-up' device. This saves the palette information within the file and is therefore *not* a standard screen format file. If you have managed to solve this problem please let us know, as we are sure that many of our customers would like to be able to print out screen shots of their favourite game.

USE WITH THE STAR LC-10 COLOUR PRINTER

To load the program simply type RUN"DISC and hit the return or enter key. A loading screen will appear and after a few seconds you will be asked what mode the picture is in. The response here is either 0 for mode 0 or 1 for mode 1. We have included on your disc an example file called mand1.bin, which is in mode 0. To get you underway we will print this out, so answer 0.

The next question asks whether you are using the LC-10 Colour printer. Valid answers are either Y for yes or N for no. If you are not using a Star LC-10 Colour printer, you are reading the wrong chapter!

Then you are asked whether you wish to use the default shadings or not. answers are again yes or no. Whilst it is possible to create your own combinations for shadings, Colour Dump 2 has a default set which will generate a colour on paper to match that used by the Amstrad. For the time being we will use the default shadings, so answer yes, but you can read the chapter on user-defined shadings later.

You are now confronted by a list of ink numbers and a column headed Colour Number. It is here that you enter details of which colours on screen should appear as which on paper.

Under AMSDOS it is possible to define up to sixteen inks with any one of the 26 colours available. To replicate the same colours on paper you should enter the Colour Number you used on screen, but should you wish to change this now is the time to do it.

The example we have included uses inks 3-15 inclusive, and the actual colours you choose make very little difference, as it is basically just a pattern. If you only wish to use a few colours simply press return without entering a colour number for those you wish to leave. The program will default to colour 26, white, and therefore not print those areas.

After entering all the colour numbers, you will be asked if you wish to repeat the selections correct, and again you should answer yes or no. If you say yes, you will be able to go back through changing the ink/colour combinations. This time pressing return without entering a colour number leaves it unaltered, rather than replacing it with white.

If you answer no, you will be asked if you require a test print, which will show on screen 16 blocks of colour using the colours you have selected in the same order. They will then be printed out.

The next question asks for the filename. You will be prompted to insert the disc with your picture on it, and hit space bar to continue. At this point you should ensure also that the printer has paper, is switched on, and on-line.

To start with use MAND1.BIN which is the example supplied on your disc. This means that you need not swap discs, of course. Note you must type in the full filename and extension. As the print head needs to pass through each line several times, and the image is printed in double-density graphics, it will take some time (up to 35 minutes if all four colours are used) for your finished masterpiece to appear on paper. At this point we recommend making some coffee and browsing through the M.J.C. Supplies price list!

USE WITH EPSON COMPATIBLE MONO PRINTERS

Even without a colour printer, it is possible to use ColourDump 2 to print out in many shades from two, three or four different coloured ribbons or coloured carbon paper.

Epson Compatible printers you may use include the Amstrad DMP range from the DMP2000 to the DMP3250, Panasonic KXP1080 or KXP1081, Citizen 120-D, and Star LC-10. You can also use Epson compatible 24 pin printers such as the Amstrad LQ3500 and Star LC24-10, BUT THE PRINT QUALITY FROM THESE WILL ACTUALLY BE WORSE THAN THE 9 PIN MACHINES IN GRAPHIC MODES.

OBTAINING COLOUR PRINT-OUTS ON MONO PRINTERS.

Coloured printing may be obtained from ColourDump 2 using two methods. These can be mixed in any print-out.

The first is by use of different coloured ribbons, and applies to most printers. ColourDump 2 will extract each area of screen with a certain colour and print out those parts only using the first coloured ribbon. It will prompt you to change ribbon and print the second extracted colour, mixing it on top of the first where necessary to produce different shades and colours. Coloured ribbons are advertised in the columns of Amstrad Action and Amstrad Computer User or in more general magazines such as New Computer Express. There are two main points to bear in mind:

1. if any ribbon is over-inked, excess ink can be passed or smudged over other colours.

2. When changing ribbons on printers such as the Amstrad DMP range, it is very easy to drop the fabric onto the page leaving unwanted marks. To help prevent this, slide a clean piece of paper over your picture before changing ribbon.

The second method is to use different coloured carbon paper. Red and blue carbon paper should be available from most office supplies stores, and others may also be stocked. The technique here is to gently slide the carbon paper between the paper and the print head without disturbing either. This means that carbon paper can only be used succesfully on those machines with a 'flat-bed' paper loading system, such as the Amstrad DMP range. With traditional 'platten-roller' printers, such as the Citizen 120-D and Panasonic KXP1081 this is virtually impossible. Again, there are a few points to bear in mind.

1. It is not necessary to remove the ribbon, although it will give a slightly better impression if you do and reduce the wear on the ribbon to a small degree.

2. The paper and carbon should be fed in so that the print head is always over the paper. If you do not do this the head may foul the paper and consign your masterpiece to the waste paper bin.

3. Blue carbon paper is generally softer than red and is more susceptible to marking paper when it is not wanted. For best results use the softer carbon first and feed into the printer with the paper.

4. The portion of carbon to be used should be unused and crumple free.

To load the program simply type
RUN"DISC and hit the return or enter key. A
loading screen will appear and you will be
asked what mode the picture is in. The
response here is either 0 for mode 0 or 1 for
mode 1. We have included on your disc an
example file called mand1.bin, which is in
mode 0. To get you underway we will print
this out, so answer 0.

The next question asks whether you are
using the LC-10 Colour printer. Valid answers
are either Y for yes or N for no. If you are
using a Star LC-10 Colour, you are reading
the wrong chapter!

You will then be asked how many colours
you wish to print in. This refers to the
number of different coloured ribbons and/or
carbon paper you will be using, and valid
answers are 1,2,3 or 4.

Following this you will be asked if you
wish to use the default shadings. These are
patterns and combinations built in to the
program to 'mix' the colours and give some of
the many shades available to you. These can
be altered, but for the time being answer Y
for·yes. You can read about user-defined
shadings later.

The screen will clear and two columns will appear, one headed INK NUMBER, the other colour number. On the CPC's in mode 0 you can have up to 16 colours on screen at any one time, from a choice of 26. The 16 you choose to use are allocated to an INK number from 0-15, so that if you wanted to use red, white and blue you might set ink 0 to colour 3, ink 1 to 13, and ink 2 to 1. See your computer manual under INK for more complete details.

What ColourDump 2 is asking here is which colour you wish to represent which ink on paper. With the Star LC-10 Colour printer it is always known which colours are available and it is therefore possible to know which colours can be mixed to what effect. A certain amount of experimenting is required with non-colour printers to find the right colour numbers to allocate.

To set the colours simply type in each colour number followed by return. After typing in the last colour used, press return for any unused colours. Colour Dump 2 will treat these as colour 26, white and any areas with these colours will not be printed. TAKE A NOTE OF THE COMBINATIONS YOU HAVE USED AS YOU WILL NEED THESE AGAIN LATER. You will be asked if you wish to make any changes, and valid answers are again Y for yes or N for no.

You then decide whether to have a test print. For mono printers this is virtually essential. Before answering yes, you should ensure that your printer is switched on, has paper, the first coloured ribbon is in place, and the printer is on-line. Answer yes, and the screen will clear to be replaced with bars of the colours you selected. After a few seconds the printer will start to produce it's interpretation on paper. After a few lines of this the printer will do a reverse feed and will ask you to insert the second ribbon. YOU SHOULD MAKE A NOTE OF WHICH ORDER YOU USED THE RIBBONS IN. Press the space bar when you have changed ribbon, and the printer will print the second part, overlapping with some of the first in order to mix the colours on the page to produce different shades. Repeat the exercise if you have more ribbons.

You should then have a sheet with 16 blocks of colour labelled 0 to 15, and you can now see the effects that the ink/colour combinations have produced. If you are happy with the results, you can go on to print out your picture by answering N for no when asked if you wish to change colours. If you are not happy answer Y for yes and you will be back to the ink/colour number table and can try new combinations. As you made a note of what you used originally, you can refer to it now to see which colours require amendment.

USER DEFINED SHADING

Irrespective of the screen mode used, ColourDump 2 has a default set of shadings, which determine the appearance on paper of the mixed colours. These should prove satisfactory on the LC-10 Colour printer, as they have been specifically arranged to try to match the colours on the CPC's palette. As we can never tell what colours will be used on a mono printer, the results may not be quite what you would like.

It is therefore possible, regardless of the printer being used, to define the shadings yourself.

Before wading in to show you how to change the shadings, you must first understand how the different shades are created.

Each pixel on screen is represented by four dots on the paper in a 2 X 2 square, and when defining shadings for mono printing you decide which of the four dots should be printed and which should not.

For each pass of the print head(each separate ribbon), you can define the pattern of dots and therefore the density of colour. By changing the density of each pass, you vary the colour and shade produced on paper.

The four dots are arranged into two columns. Assuming a, b, c, and d, to be the dots, the grid would look like this:

```
              Column
               1  2
                ┌─────┐
           1    │ a  b│
     Row        │     │
           2    │ c  d│
                └─────┘
```

For each column you will be asked to enter a number from 0 to 3 to show which dots will be printed for each pixel. For the first column the following chart will tell you the effect of the number chosen;

0   neither a nor c printed
1   dot c only will be printed
2   dot a only will be printed
3   dots a and c will be printed.

Likewise, for the second column;

0   neither b nor d will be printed
1   dot d only will be printed
2   dot b only will be printed
3   both b and d will be printed.

When using only one colour, as in conventional screen dumps, these combinations give a total of seven different shadings, as can be seen on the next page.

Shading.	Dots printed	Numbers to specify
Solid	All four	3 3
Heavy	Any three	3 1 or 3 2 or 1 3 or 2 3
Vertical stripes	a+c or b+d	3 0 or 0 3
Horizontal stripes	a+b or c+d	1 1 or 2 2
Medium	a+d or b+c	2 1 or 1 2
Light	Any one position	1 0 or 2 0 or 0 1 or 0 2
No shading	none	0 0

So that is how you amend the shading for one pass of the print head. As you can use up to four colours there are four passes of the print head.

Each screen colour allows you to specify the combination of shadings for each pass of the print head. This gives a choice of shades far greater then the humble CPC can muster, but there is always the restriction that you can only allocate a colour to print to a screen ink, so only 16 may be in use at any one time.

Now is the time to show you, with an example, how to alter the shadings for yourself.

Run the program as described in the chapter on using ColourDump 2 with your class of printer. Follow the normal procedure until you are asked if you wish to use the default shadings. Answer N for no to this question, and you will be face with the table asking you for ink/colour combinations in the usual way. For the sake of this experiment we will change colours 9 (green) and 7 (purple), so make ink numbers 0 and 1 and then use colours 9 and 7 respectively. You may use the other colours how you wish. Having allocated the colour numbers, you will be faced with a table looking something like this:

		Pass	1	2	3	4
		Column	1 2	1 2	1 2	1 2
Ink No.	Colour No.					
0	9		≫			
1	7					
etc.	etc.					

The cursor will be sitting waiting for you to enter the first column number for pass 1 of the print head (the first ribbon). In the case of the Star LC-10 Colour printer, the four colours are pre-defined as Black, Blue, Red and Yellow, so we will assume that these are the four ribbons available, and the order they will be used in for mono printers.

To re-define colour 9 to green, we will overlay solid yellow and solid blue. We therefore need specify pass 1 as 0 0, pass 2 as 3 3 (all four dots blue) pass 3 as 0 0 and pass 4 as 3 3 (all four dots yellow).

For colour 7 (purple) we will use alternate vertical stripes of red and blue. Again pass 1 is 0 0 (no black), pass 2 is 3 0 (the first column both dots printed blue), pass 3 is 0 3 (second column both dots printed red) and pass 4 0 0.

Although that all may sound quite complicated, the screen should look something like this:

Ink No.	Colour No.	Pass 1 Column 1 2	2 1 2	3 1 2	4 1 2
0	9	0 0	3 3	3 3	0 0
1	7	0 0	3 0	0 3	0 0
etc.	etc.				

Once you have completed the table, you will be asked if you wish to make any changes and then if you require a test print. It's up to you!

To re-define colour 6 to green, we will overlay solid yellow and solid blue; we therefore need modify pass 1 as 0 Y/ROW, so 1 L (M) from solid blue; pass 1 as 0 G and pass 4 as 4 G (all four dots yellow) ...

For colour 7 (purple), we will then alternate several stripes of red and blue. Modify pass 1 as 4 G (an black), pass 2 as 1 R (the two colons both dots printed blue), pass 3 as 0 A (second colon with dots printed red) and pass 4 0 Y ...

Although that all may sound quite complicated, the screen should look something like this:

Once you have completed the table, you will be asked if you wish to make any changes and then if you require a test print. It is up to you!