TASCOPY

QL

The Screen Copier

A

Tasman Software Program

for the

Sinclair QL

TASCOPY

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1. INTRODUCTION

The TASCOPY QL package contains programs to produce grey scale, monochrome and poster size screen copies.

The grey scale screen copies produce the effect of colour by printing each screen pixel (dot) as a pattern of dots on the printer. Different colours on the screen have differing densities when printed with the darker colours having greater dot densities. There are two programs to produce grey scale screen copies, one for the TV screen and one for the Monitor although it must be noted that either may be used with either a TV or a monitor.

The QL screen is composed of tiny dots called pixels. There are two screen modes called mode 0 and mode 8, in mode 8, there are 256 pixels across and 256 pixels down and in mode 0 there are 512 pixels across and 256 pixels down. The Tascopy programs will produce screen copies of any area of the screen (called a window).

The TV version will only print up to 480 screen pixels across in mode 0 and 240 pixels down in mode 8 but in return you get a much better grey scale resolution and on some printers a choice between two printing modes (N.B. if you have a Mannesman Tally MT80, a Shinwa CP-80, an Admate DP-80 or a Taking TP-80 printer then you are not restricted by the window size). The monitor mode version will print out any size of window up to the maximum of 512x256 in mode 0 or 256x256 in mode 8.

The monochrome program produces a fast monochrome screen copy. You can specify which colours will be represented by a dot on the printer and which colours will be represented by no dot.

The poster size screen copies are very large versions of the grey scale screen copies and are printed on more than one sheet of paper. Depending on the window size, the poster will be printed on 1, 2 or 4 sheets.

2. USING TASCOPY FOR THE FIRST TIME

Press the reset button on the side of the computer and place the microdrive cartridge in microdrive 1 when the Sinclair copyright message appears on the screen. Press Fl or F2 as normal, this will load the BASIC program "BOOT" and start it running .

The screen copy programs are in machine code and are loaded by the program "BOOT" into memory so that they can be configured to your printer and your requirements.

The "BOOT" program then merges in the large BASIC configuring program which customises the TASCOPY code.

Some introductory text is followed by a list of printers next to the letters A to O. If your printer is on the list then press the appropriate letter. If your printer is not on the list then you will need to use the "OTHER" option. It is necessary to refer to and understand the appropriate sections of the printer manual to use this option. If you need to use this option then refer to section 6.

If your printer is capable of printing in two graphics modes then you will be asked which mode you wish to print in. In double densfty mode the grey scale resolution is twice that of the double densfty mode but takes twice the amount of time to print.

You will then be asked if your printer is set up to:

(A) do an automatic line feed on receipt of a carriage return from the computer, or

(B) require a line feed code from the computer in addition to a carriage return.

Select A or B as appropriate, or, if in doubt take the course of action suggested by the program.

The next section enables you to redefine the way in which TASCOPY represents colour in the grey scale and monochrome programs. The first time user is advised to press N for no in response to the two questions concerning colour redefinition. For instructions on how to redefine the colours see section 5.

3. SAVING CUSTOMISED TASCOPY SOFTWARE

Load and run the software as described above and press the appropriate key when given the option to save to microdrive. The program will prompt you to take the necessary steps.

The saved TASCOPY code can have two forms. In the first instance it can be saved in such a way that you can load it using the BASIC CALL commandi This will set up TASCOPY as a new BASIC keyboard which will remain effective until you reset the computer.

In the second instance it can be saved so that you can load and run TASCOPY by using the EXEC command. This method uses the multitasking capability of the QL and allows you to do some other task on the computer once the screen copy has been initiated. The disadvantages of this method are that you cannot pass the window channel number to the program and the break key cannot be used to stop the printing.

4. LOADING AND USING THE CUSTOMISED TASCOPY SOFTWARE

Before running the Tascopy machine code for the first time after loading you must set up the baud rate for your printer by executing:

BAUD xxxx

where xxxx is the baud rate that your printer is set up for.

4.1 Using Tascopy as a New Keyword

To load your customised Tascopy software, put the microdrive cartridge containing the customised software into microdrive 1 and type in the following instructions on the computer:

```
a=RESPR(X)
LBYTES MDV1_filename,a
CALL a
```

where X is one of the following numbers:

1008 for the monochrome program
1512 for the TV version grey scale program
1088 for the monitor version grey scale program
1484 for the poster program

'filename' is the name of the customised program.

To run the Tascopy machine code, type one of the following:

TASMONO to run monochrome program
TASCOPY_TV to run TV version grey scale program
TASCOPY_MON to run monitor version grey scale program
TASPOSTER to run poster program

The 4 words above are extensions to basic and can be used as basic keywords.

The TASCOPY software will print out any of the screen windows or the whole screen (512 x256 mode 0, 256 x256 mode 8). If you are using a TV screen and you want to print out the whole screen then use the monitor version, you do not have to use the TV version with a TV screen or the monitor version with a monitor. The only difference between the programs is the size of the window that the TV program will print on a printer which is only capable of printing 480 dots across. To print out the contents of a certain window then type the command (TASMONO, TASCOPY_W, TASCOPY_MON or TASPOSTER) followed by the symbol "#" and the channel number e.g.

<div align="center">

TASPOSTER #1
TASCOPYTV #0
TASMONO #7

</div>

The channel specified must be a screen channel which is currently open otherwise TASCOPY will give an error. If you are using TASCOPY_TV then the window must not exceed the size limits (unless using a Mannesman Tally MT 80, an Admate DP-80, a Shinwa CP-80 or a Tatung TP—80 printer) otherwise the error 'Window too big' will be returned. The error 'Invalid channel' will be given if the channel open is not a screen channel or a console, channel.

If a channel is not specified then a default window will be used. TASCOPY_TV will use the #1 default printing screen but all of the others will use the whole screen (512 x256 mode 0, 256x 256 mode 8).

The Tascopy code resides in the resident procedure area and will not be removed by the operating system until you reset the computer.

It is important to note that the loading and initialisation of the customised TASCOPY software, as described at the beginning of this section, must be performed BEFORE a BASIC program containing TASCOPY keywords is loaded.

4.2 Using Tascopy with an Exec Command

To load and run TASCOPY as a multitasking job, place the microdrive into drive 1 and type the following:

EXEC MDV1_filename

where 'filename' is the name of the customised program which has been saved for use in this way.
You can change the window which the exec program will use by saving it for use as a basic keyword and typing in the following.

reset the computer and type:

<div align="center">

a=RESPR(X)
LBYTES MDV1_filename
CALL a

</div>

Run the machine code by typing the appropriate new BASIC keyword and then hold down the CTRL key and press the space bar until the message 'Not complete' appears. Now type:

<div align="center">

SEXEC MDV1_new_filename, a+ 12,X— 12,0

</div>

See section 4.1 for the value X and the BASIC Keyword.

Now the new machine code will have been saved and you can use the EXEC command as previously described.

5. REDEFINING THE COLOURS

The first question regarding redefining the colours asks whether or not you want to alter the colours that are printed as a dot in the monochrome program. The monochrome program prints one dot for every screen pixel and so only 2 colours are represented on the paper. By default, the program will only print a dot for a pixel if it is white, however this can be changed by pressing Y here and following the instructions.

The dot patterns which are printed out to represent colours in the grey scale programs can be redefined. The program enables you to do this with ease. If you want to redefine any colours, type Y in response to the question 'Do you want to redefine the colours for any of the grey scale programs'. You will then be asked which colour you wish to redefine. The QL uses 8 colours numbered 0 to 7 and you may choose any of these colours by typing in a number between 0 and 7 and pressing ENTER. When you have chosen your colour you will see 2 grids which show the dot patterns. At the foot of the screen are instructions which tell you how to edit the pattern.

When you have finished editing a pattern be sure to press R before Quiting otherwise the old pattern will not be replaced with the new one.

When you have finished editing the dot patterns you will be informed that the TASCOPY machine code programs have been configured and you will be given the choice of saving a copy of the configured code, running the basic program again, entering basic or printing a test screen copy. The program will ask you to enter your printer baud rate and will return to the menu when the screen copy has been printed.

6. INSTALLING YOUR PRINTER USING THE "OTHER" OPTION

After selecting the "Other" option you will see some information on the screen, read this and press ENTER. There now follows a series of questions asking for printer control codes.

The control codes are ASCII codes used by your printer to switch on its different functions. They can be found in your printer manual, usually in a

list on the back. The better printer manuals have whole sections explaining each code in detail. In the TASCOPY configuring program, these codes are typed in as a sequence of numbers. Many sequences of codes are written down using letters and the special symbol ESC which stands for Escape, has a code of 27. Thus if a control code sequence was written in your manual as:

ESC A 8   then the codes for Tascopy would be:

27,65,8   where 27 is the code for ESC, 65 is the code for capital A and 8 is a decimal number

Some manuals specify their escape codes in hexadecimal and these HEX numbers must be converted to decimal before they can be used with TASCOPY QL. A list of the ASCII codes and HEX numbers can be found in the CHARACTER SET AND KEYS part of the CONCEPTS section in your QL user guide.

The following codes will be asked for by TASCOPY QL

(1) codes for 1/9 inch line spacing?

This code instructs the printer join up the print from successive passes of the print head by making the paper advance a distance of 1/9 inch

(2) codes for bit image printing?

This control code sequence is used to tell the printer to print the following data in graphics mode. On most printers the codes will be ESC followed by a letter followed by the number of big-image data bytes that will be sent.

(3) Press   1 for ASCII format
            2 for numeric format

Press 2 for numeric format if your printer requires two numbers in the range 0-255 to specify the number of bytes of data to be printed in graphics mode. Press 1 for ASCII format if your printer requires a sequence of three or four ASCII numbers to specify this information.

(4) codes for 1/6 inch line spacing?

This code sequence is used in order to return the printer to the normal line spacing size that is selected when the printer is powered up.

(5) Most significant bit at top or bottom?

Most printers print the Most significant bit (MSB) of the data bytes at the top of the print head but a few work with the MSB at the bottom, If you cannot find a reference to this in your printer manual then assume it to be at the top If the printout doesn't look right then run the program again and select MSB at the bottom.

7. MAKING A SECURITY BACKUP COPY OF TASCOPY

There is a basic program on the TASCOPY cartridge which is run by entering the command:

LRUN MDV1_CLONE

You will be asked to put the master cartridge into microdrive 1 and the unformatted cartridge into microdrive 2. The program will format the cartridge in microdrive 2 and copy all of the TASCOPY programs onto the new cartridge. The program takes about 10 minutes to run and will not prompt the user further until the backup is complete.

NOTICE

Some printer manuals warn that the continuous printing of bit image data can damage the print head. Whilst no such damage was detected in comprehensive testing of the TASCOPY software, Tasman Software Ltd can assume no responsibility for any damage so caused.

COPYRIGHT NOTICE

The Tascopy software in both the machine code and the basic programs is the copyright of Tasman Software Ltd both in the form that it is supplied and in any customised or amended form.

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The Screen Copier

Tascopy is designed to produce high resolution screen copies, both black and white and large grey scale copies (in a choice of two sizes) which produce different dot densities for different screen colours

TASCOPY QL has been tested with the following printers:

Admate DP-80
BMC BX80
Brother HR5, M1009
Canon PW-1080A
Cosmos CP-80
Epson FX-80, RX-80, MX-80
Mannesman Tally MT-80
NEC PC-8023B
Seikosha GP-550A
Shinwa CP-80, JP-80A
Star DP 510, 515
Star Gemini 10X
Tatung TP-80
Taxan/Kaga KP810

TASCOPY QL will drive any 8 pin dot matrix printer capable of bit-image printing.