VERYSOFT

presents

GRIPPER

Version 1.0

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GRIPPER V1.0

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CONTENTS

GRIPPER

What can it do?

Have you ever bought a game and been disappointed at the standard of the graphics, and believe that you could do better yourself? Have you ever wanted an easy method of changing messages or perhaps the names in an high score table? Have you wondered if there are any messages or clues within a program?

With GRIPPER you can alter the sprite data in most commercial games. You can export the sprite data and reload it, perhaps after it has been edited in some way, at a later date. You can easily find and then alter any messages. Many games contain scrolling messages that are no more than the programmer saying hi to all his mates. Well why not have the message saying hi to all your friends? You could use the editor utilities to find pokes for infinite lives etc.

Gripper also allows you to examine program code in many ways: There is a disassembler, various hexadecimal and character dumps (to screen and/or printer), a graphic dump of the memory contents and a very useful multi-column memory viewing utility that allows you to have four windows on screen each of which can display a disassembler listing or a character dump or a hex dump. You can also search the memory for bytes or strings using the search menu.

IMPORTANT:
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Do not use this program to infringe copyright laws. Remember back-up copies of programs are for personal and archival purposes only.

GRIPPER works without the need for a Multiface, but can work in conjunction with one. There are a few options dedicated to the use of a Multiface. These are: Load Multiface and Save Multiface in the File menu, View Multiface Info in the Editor Menu and Set Colours From Multiface in the Colours menu.

Load and Save Multiface will load in and save a program previously saved from the Multiface's menu. These options do not remove any protection that the Multiface uses. A game saved from one Multiface will not reload and work on another one.

View Multiface Info allows you to examine the state of the Z80 registers, the 6845 CRTC registers, the palette contents and the additional data saved out with a Multiface saved program.

Set Colours From Multiface will set the inks to the values they were when then program was initially saved.

If you are using this program without a Multiface you are restricted to using files in the standard Amsdos format.

Gripper works only on disc based machines with 128K of memory. It is compatible with one or two disc drives.

IMPORTANT

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ALL EXTERNAL ROMS
MUST BE DISABLED BEFORE RUNNING THIS PROGRAM

ABOUT THE SPRITE TABLE

WHAT IS IT?

Put simply, the sprite table is a list of sprites. You add sprites to the table in one of two ways: You can add a sprite individually - positioning it as you require or you can add a series of sprites as a sequence. (For more details see the section Sprite Menu.)

WHAT CAN YOU DO WITH IT?

Well a lot is up to your imagination, but once you have found the sprites in a game and created a sprite table, you can then save them out as a backup if you wish to alter the original sprite data. Or you can edit the sprites, save the table and re-edit the sprites and save the table again giving you the possibility of having the same game with different sets of sprites.

It is great fun to alter a games' sprites, especially when playing the game later with your own sprites not the original ones.

Altering the sprites will breath new life into old and tired out games. Try it - you might like it!

WHAT YOU CANNOT DO

You cannot use other peoples graphics/sprite data in your own programs for commercial purposes. Graphic data is copyright material.

For details of the format of the sprite table see appendix A.

GENERAL CONTROL AND OPERATION

All the options in this program are accessed through a series of menus. There are 13 menus with a total of 64 selectable options.

If an option takes you to a further menu it will be identified in the menu by '> >'.

To select an option move the cursor bar up or down with the cursor up/down keys. To execute your selection press either the space bar or the return/enter keys.

Once in a feature to escape press the escape key or 'E'. In the Multi-View option press 'Q' to quit.

The first menu you see after booting up is the Main menu. From here you access all the other areas of the program.

MAIN

File	**> >**
Editor	**> >**
Mode	**> >**
Colours	**> >**
Sprite	**> >**
Printer	**> >**

FILE MENU

Options

Load Multiface
Save Multiface
Load Program
Save Program
Load Data
Save Data
Utilities >>
Clear Memory
EXIT

All the programs file handling features are accessed via this menu and the subsidiary Utilities menu.

Load Multiface

Use this program to load in a program previously saved out with the use of a Multiface.

This program only works, fully, on 64k games. i.e. It only loads in the first 4 blocks of a Multiface saved game. On programs that use the second banks of memory (128k programs) then you will be able to load in the first 4 blocks.

A Multiface saves out either 5 or 9 files depending on the size of program, one file is the loader the other 4 or 8 are 16k blocks of the computers memory. If a program uses only the normal 64K of memory then when you save it from the Multiface press 'C' to clear the extra banks. (See Multiface instructions).

Save Multiface

Selecting this option will compress the data and save it out in Multiface format so that you can run it again at a later date. This option only works on programs loaded in with the Load Multiface option.

No protection is removed by GRIPPER. You are given the opportunity to rename the file. At the Change Name prompt type 'Y' to change the name or 'N' not to, then press enter.

Load Program

This option is used to load a standard Amsdos file. The file will be loaded automatically to the address it was originally saved from. The files' parameters are preserved for use with the Save Program option outlined below.

Save Program

Saves a program previously loaded with the above option. The file will be automatically saved with the correct file length, start address and execution address.

Load Data

If you wish to specify where in memory you wish to load a file then you should use this option. Any address is available from #0000 to #FFFF, the full 64k is available to the user.

Save Data

If you wish to save a section of memory then this option is to be selected. You will be requested for a start address, end address and execution address.

Utilities >>

Selects the utilities menu. (See next page).

Clear Memory

Warning:
Be very careful when using this option. It irreversibly clears the user memory. It also erases any existing sprite table.

UTILITIES

Options

Catalogue
Erase
Erase Backups
Rename
Information
Drive A } Only available on
Drive B } dual drive machines.
EXIT

Catalogue

Displays a directory of the disc in the currently selected drive.

Erase

Displays a directory of the disc in the currently selected drive then prompts for a file name to erase. Standard Amsdos wild cards are allowed (e.g. ? and *).

Erase Backups

Deletes all files with the extension .BAK. The equivalent of |ERA,"*.BAK".

Rename

Renames a file. Prompts for a new filename then the old filename (the one to rename) and then renames the file.

Information

Displays a directory of the current disc and then prompts for a file name. The following information regarding the file is then displayed.

User number
File Name
File type
Start Address
File Length
Execution Address

Drive A

(Only available on dual drive machines).

Makes drive A the current drive.

Drive B

(Only available on dual drive machines).

Makes drive B the current drive.

Exit

Returns to the File menu.

EDITOR

Options

Ascii Dump
Hex & Ascii Dump
Edit
Disassemble
Multi View
View Memory
Print >>
Search >>
View Mface Info

Ascii Dump

Keys:
Any key pauses - Same key again exits - Different key continues
Escape or E Exits

This option allows you to examine the computers memory as a series of characters, thereby revealing any messages contained in a program.

You are requested for a start address, an end address, the text type and whether the top bit should be set or reset.

Text Type, chooses wether to display characters between 0 and 127 (Text Type 0) or characters between 0 and 255 (Text Type 1).

Top bit, when reset will set the top bit of a character byte to 0 therefore forcing the character into the range 0-127. When set the character remains in the range 0-255.

It is useful to be able to reset the top bit when looking for messages, for the sake of clarity. Some, if not most, programmers will mark the last character in a string by setting the top bit of the last byte. Resetting the top bit makes messages easier to read.

Hex & Ascii Dump

Keys:
Any key pauses - Same key again exits - Different key continues
Escape or E Exits

Dumps to the screen a Hexadecimal and Ascii Dump of the computer memory between two specified addresses.

Edit

Keys:

\ (Back slash)	To start entering text (border changes to red).
Return	To finish entering text.
. (Full stop)	To enter a byte in hex (border changes to orange).

Cursor keys	Move cursors
Ctrl+cursor up/down	Move up/down one page.

Any key pauses - Same key again exits - Different key continues
Escape or E Exits

This is where you can alter the memory contents. Either by typing in a hexadecimal number or a typing in a string.

For example:
Assume you have been examining a game and you have found the high score table data, and you wish to place your name in the top spot. Move the cursor to the start of the name you wish to overwrite. Then press \ (next to the right shift key), the border will turn red indicating that anything you now type will be entered into the code. Type your name, finish by pressing return. Anything altered will be shown in inverse. That's all there is to it.

Disassemble

Keys:
Any key pauses - Same key again exits - Different key continues
Escape or E Exits

This is the main disassembly option, it gives you a choice of 3 different styles of output:

Type 1: Address and instruction only.
i.e.: #0000 LD HL,#4049

Type 2: Address, Ascii and instruction.
i.e.: #0000 !I@ LD HL,#4049

Type 3: Address, hex, Ascii and instruction.
i.e.: #0000 21 49 40 !I@ LD HL,#4049

The disassembler will disassemble all the Z80 instructions including all the undocumented ones. For a detailed list of all the Z80 instructions see appendix D.

Multi-View

Keys:

W	Select window (1 to 4)
S	Enter start address
E	Enter end address
D	Display a disassembler listing
A	Display an Ascii dump
H	Display a hexadecimal dump
?	Display commands
Q	Quit back to Editor menu

In Multi-view you have four windows available, each of which can display either a disassembly, an Ascii dump or a hex dump. It is very useful when tracing machine code to be able to have more than one listing on screen at any time.

View Memory

Display a graphical representation of the contents of memory between locations #0000 to #C000.

As you use this option more and more you will learn to recognise which areas are program code and which are graphic data etc. Generally program code will appear more solid than graphic data which will appear more patchy.

Print >>

Enter Print Menu. (See next page).

Search >>

Enter Search menu. (See later page).

View Mface Info

Displays information as to the status of the computer when the program was initially stopped, with the Multiface, and then saved.

The information displayed is:

Z80 registers
6845CRTC registers
Palette
Multiface additional info. (see Multiface instructions)

EXIT

Return back to Main Menu

PRINT

Options

Ascii Dump
Hex & Ascii
Disassemble
Printer >>
EXIT

Ascii Dump + Hex & Ascii + Disassemble

Do relevant dumps to the printer as well as to the screen.

Note:
Only characters with an Ascii Value between 32 and 127 can be printed from an Amstrad computer.

Printer >>

Enter Printer Menu. (See later page).

EXIT

Return to Editor menu.

SEARCH

Options

Wild Byte
Byte
String
EXIT

Wild Byte

Allows the user to search through memory for a series of bytes allowing for 'wild bytes' to be searched.

A wild byte is specified by entering a 0 in the search sequence.

For example:

Say you are searching a program for the instructions that decrement a life, which could possibly be something like this:

LD A,(addr)
DEC A
LD (addr),A

As you will not know the addr that stores the life value, you need to search for all occurrences of the instructions LD A,(addr):DEC A:LD (addr),A, specifying the address as wild bytes:

e.g. Search for: #3A,000,000,#3D,#32,000,000

This will find all the occurrences of bytes that fit the above routine.

To enter the bytes, simply type them in, in either hexadecimal or decimal, separating each byte by pressing return. Press return again after the last byte to end the sequence.

Byte

Allows the user to search for a specified sequence of bytes. No Wild cards are allowed so that searching for :

#3A,000,000,#FE,000

Will only find that particular sequence of bytes.

String

To search for a series of Ascii characters or a string then use this option. Wild bytes are allowed and are identified in the search string by a '?'.

For example:

Searching for: LI?E

will find: LIFE, LIKE and LIVE

Note all search's are case sensitive, i.e. they treat a and A as different characters.

EXIT

Returns to the Editor Menu.

PRINTER

Options

Reset Printer
Select Condensed
Output Ctrl Codes
Title
EXIT

Reset Printer

Resets the printer to its initial default state.

Select Condensed

Sends the control codes 27,15 to the printer to select the condensed typeface.

Output Ctrl Codes

Allows the user to output any control codes to the printer. To enter the codes type them in separating each one by pressing return and end by pressing return again.

Title

Allows the user to input a string which will be immediately output to the printer.

EXIT

Return to the previous menu.

MODE

Options

Mode 0
Mode 1
EXIT

Mode 0

Selects screen mode 0. All areas of GRIPPER that work with sprites will now use this mode.

Mode 1

Selects screen mode 1. All areas of GRIPPER that work with sprites will now use this mode.

EXIT

Returns to the Main menu.

COLOURS

Options

Set From Multiface
Change
Default
EXIT

Set From Multiface

This option will set all the inks to those saved out with a game previously saved by a Multiface. This option is only available for games saved from a Multiface.

It is important to note that there is the possibility of setting all the inks to the same colour, thereby making it impossible to see anything! This will occur when you initially save the game. If the screen is blank when you press the Multiface Stop button, then all the inks will be set to the same value. To avoid this, simply ensure that when you initially stop the program you do so when there are some graphics visible on the screen. You can check the Palette contents at any time by using the View Mface Info option in the Editor Menu.

Change

keys:

Cursor left/right	Select pen.
Cursor up/down	Change ink.
Escape/E	Exit.
Ctrl+cursor up/down	Change page of sprite table.

This option allows you to change the current ink values. A page of the sprite table is displayed and a window at the bottom of the screen. If no sprite table as been defined then just the colours window will appear.

Use the cursor left/right keys to select the pen to change. Then use cursor up/down to change the values (colour). Pressing control and either cursor up or down at the same time will move through the pages of the sprite table.

Default

Use this option to restore the ink settings to their default values. For a list of the default values see appendix C.

EXIT

Return to Main Menu.

SPRITE

Options

Sprite Table >>
Sprite Scanner
Add to table
Add Sequence
Change Colours
Edit Sprite >>
View Animation
EXIT

This section of the program deals entirely with the discovery and editing of sprites. A sprite can be defined as an arrangement of pixels on screen that form a graphic image. A sprite usually moves around either controlled by the user, say a spaceship in a shoot-em-up, or under the control of the computer as would the enemy aliens in the same shoot-em-up. Most commercial games will also use blocks of graphic data to build up scenery and other non moving graphics. You will be able to find all these and more with GRIPPER. For the sake of simplicity I will describe any graphic image as a sprite.

As you can imagine with a little effort and a bit of imagination you could totally transform the look of a game. Or if you prefer you could just edit one or a few of the main sprites. For example changing the main ship in a shoot-em-up.

Sprite Table

This option brings up the Sprite Table menu.

For a detailed description of the sprite table see page 4.

Sprite Scanner

keys:
Change Sprite Size:

Cursor left/right	Increase/decrease width of sprite.
Cursor up/down	Increase/decrease depth of sprite.

Change memory address:
To increase address:

By 1 byte	1
By width of sprite	2
By size of sprite	3
By 1024 bytes (1k)	0

To decrease address:

By 1 byte	Shift+1
By width of sprite	Shift+2
By size of sprite	Shift+3
By 1024 bytes (1k)	Shift+0

Move sprite:
Q Up A Down O Left P Right
S Toggle move step (between 1 and 8 bytes).

C Change colours.
I Input new address.
Escape/E Exit.

This section is used to actually find the sprite data. If it seems complex at first bear with it, finding and identifying sprite data will soon become second nature.

There are three information panels displayed on the screen: The first panel (on the left) shows the coordinates of the sprite. The coordinates are in bytes, 0,0 being the top left corner of the screen. The screen is 80 bytes wide by 200 bytes deep.

The second panel displays the current height and depth of the sprite, again measured in bytes.

The last box shows the address (in hexadecimal) of the top left pixel of the sprite at which you are currently looking.

It helps when first starting to look for sprite data , to have a rough idea of where in memory the graphics data is. One of the best ways is to use the View Memory option in the Editor Menu. This displays the memory contents as a graphic image. With a little a practice you will quickly learn to differentiate between graphics and program code. As a quick guide remember that program code will appear more dark and dense while graphic data takes on a more patchy an light appearance.

To find a sprite, first check that you are in the correct mode, most games use mode 0. If you are examining a program loaded in with the Load Multiface option then selecting the Set Colours from Mface option will ensure that all the colours will be set correctly.

If you do have an idea where the sprites are located, pressing 'I' will allow you to enter, in hexadecimal, an address. If you don't you can quickly scan through memory by pressing '0', this alters the address by 1024 bytes each press so you soon see something that looks like it could be a sprite.

Do not expect all sprites to be the same size! So if you have got what appears to be a disjointed sprite then try altering the sprite size by using the cursor keys.

Graphic data will usually appear more constant than the program code, with colours appearing more uniform. Program code appears totally random. Individual sprites usually use only a few colours, so look for areas of similar colours.

If at any time you wish to alter the colour settings, then press 'C'. This will bring up the Change Colour panel at the bottom of the screen. Use the cursor left/right keys to select the pen and cursor up/down to select the ink for that pen.

To alter the memory address use the keys 1,2,3 and 0, pressing shift with these keys will move the memory address backwards. Pressing '1' will alter the address by 1 byte, scrolling the sprite sideways. Pressing '2' will adjust the address by the width of the sprite, moving the sprite vertically by 1 line. Pressing '3' will alter the memory address by the size (width*depth) of the sprite, this will show the next sprite (if there is one!).

Add to Table

Keys:
Move sprite: Q up A down O left P right
Change Page: Cursor up/down
Toggle move step: S
Set sprite in position and exit: Space
Exit without setting sprite: Escape/E

Use this option to add an individual sprite to the table.

Firstly select the page you wish to place the sprite on using the cursor up/down keys. The current page is shown by the number at the bottom left of the screen, the second number shows the number of pages already used. It is sometimes better to try and arrange the sprites into groups, such as the main character sprites and the scenery sprites. This facilitates faster selection and editing.

To position the sprite use keys Q,A,O and P. When you are satisfied with the placement of the sprite, pressing space sets the sprite in position. If for any reason you wish to exit without setting the sprite then press escape or 'E'.

Pressing 'S' will toggle the movement step between 1 and 8 bytes.

There is room for a total of 740 sprites in a table. If you try to put more than this number into the table then you will be stopped by a "SPRITE TABLE FULL" message. If you want to have more than 740 sprites in a table then you will have to create two tables. First save the current table, then clear the memory used by the table using the Clear Table option, and then you are free to create another table.

Add Sequence

This option can be a real time saver! Instead of adding sprites to the table individually you can add a sequence.

A sequence is described as a series of sprites following on from each other all having THE SAME DIMENSIONS.

Just enter at the prompts the address of the first sprite in the series and then the address of the last sprite in the sequence. The dimensions are taken as the currently selected ones (on the sprite scanner screen). A sequence will always be placed in the table starting on a blank page.

Change Colours

See 'Change' page 21.

Edit Sprite >>

Enter Edit Sprite Menu (see page 27).

View Animation

Keys:
Move cursor: Cursor left/right
Change page: Cursor up/down
Select sprite: Space
Exit: Escape/E

It can be useful to view a series of sprites as they would be in a game, i.e. animated.

You can only view sprites as an animation cycle which have already been added to the sprite table.

To select a chain of sprites use the cursor up/down keys to select the page you require in the sprite table and then use the cursor left/right keys to select the first sprite in the animation, then press space to accept it, a beep will be heard to confirm selection. Do the same to select the last sprite in the sequence.

A new screen will appear with the animation continuously cycling through from the first sprite to the last and then repeating.

Pressing left or right cursor keys in this section will alter the delay between displayed frames. Pressing 'Escape' or 'E' will exit back to the Sprite menu.

EXIT

Return to the Main menu.

SPRITE TABLE

Options

View Table
Save Table
Load Table
EXIT

View Table

Keys:
Change current page: Cursor up/down
Exit: Escape or E

Selecting this option allows you to view the current sprite table. Pressing cursor up/down will move you through the defined pages.

Save Table

This option will save the current table, and the relevant sprite data. For details of the sprite table format see appendix B.

Load Table

Loads a table from disc setting the inks to those which were saved out along with the table.

Clear Table

Clears the current sprite table. Only the table data, not the sprite/program data is erased.

EXIT

Return to Sprite menu

EDIT SPRITE

Options

Edit Current
Fetch from Table
Copy Sprite
EXIT

Edit Current

Selecting this option enters the sprite editor.

Keys:

Move cursor:	Q up A down O left P right
Change pen:	Cursor up/down
Scroll edit window:	Ctrl+cursor up/down/left/right
Scroll sprite:	Shift+cursor up/down/left/right
Plot point:	Space
Exit:	Escape/E

Enter Sprite Effect menu: Enter

The largest sprite that you can edit is 56 bytes deep by 80 bytes wide. If you wish to edit a sprite deeper than 56 bytes you will have to treat the sprite as separate sections, each no deeper than 56 bytes: Exit back to Sprite menu and select Sprite Scanner and using the up cursor keys shrink the height of the sprite to less than 56 bytes. Then go to the sprite editor and edit this section. After editing this first section return to the sprite scanner and press '3', this will bring up the next section of the sprite, adjust the height of this section if necessary, and then edit this section.

To edit a sprite move the cursor (a flashing '+'),using the keys Q,A,O and P. Pressing space will plot the point in the current pen. The current pen can be changed with the up and down cursor keys.

To move quickly around a large sprite use the cursor keys holding down the control key at the same.

If you need to scroll the sprite in any direction then use the cursor keys again but this time hold down the shift key.

Pressing return/enter will bring up the Sprite Effect menu. From this menu you can flip the sprite around either a vertical or horizontal axis, clear the current sprite or alter the pixels of the sprite.

Altering the pixels does not change the colours of the sprite, but physically redraws the pixels in the selected pen, with pixels plotted in the newly selected pen.

Fetch From Table

Keys:
Move cursor left/right: Cursor left/right
Change current page: Cursor up/down
Select sprite & exit: Space
Exit without selecting: Escape/E

Selecting this option brings up a page of the sprite table. You can then select a sprite to edit, making it the current sprite.

Use the cursor left/right keys to choose a sprite, or the cursor up/down keys to change the sprite table page. Pressing Space will select a sprite making it the current sprite.

To edit this sprite select the Edit Current option.

Copy Sprite
Keys:
Move cursor left/right: Cursor left/right
Change current page: Cursor up/down
Select sprite & exit: Space
Exit without selecting: Escape/E

Selecting this option brings up a page of the sprite table. You can then select two sprites, copying the first sprite into the second.

For example:
Suppose you have decided to edit the sprites in a game, the main sprites are a man walking left and right. The man walking left sprite is a mirror image of the walking right sprite. To save editing the two sprites separately, and trying to remember what alterations you made in order to keep symmetry, you can edit just one sprite, copy it to the second sprite and then edit that sprite by flipping it around a vertical axis. Following this procedure you will have created to sprites, one a mirror image of the other.

As with all sprite editing routines, it is preferable to save out a sprite table containing the original sprites. Then if any errors are made you can always restore the game sprites to their original state by loading in this sprite table.

EXIT

Return to Sprite Editor.

SPRITE EFFECT

Options

Flip Vertical
Flip Horizontal
Clear Sprite
Alter Pixels
EXIT

Flip Vertical

This option will flip the current sprite being edited around a vertical axis.

Flip Horizontal

This option will flip the current sprite being edited around a horizontal axis.

Clear Sprite

Clears the current sprite. Be careful when using this option as it is impossible to recover a sprite once it has been cleared.

Alter Pixels

Selecting this option will prompt for two pens, an original pen and a new pen. It will then physically replace the pixels written in the original pen with ones plotted in the new pen.

EXIT

Return to the Main Menu.

GRIPPER KEY SUMMARY

ALL MENUS:

Move cursor:	Cursor up/down
Select option:	Space or Return or Enter

SPRITE SCANNER:

Move sprite:	Q up A down O left P right
Alter size:	Cursor up/down/left/right
Alter address:	Increase by 1 byte: 1
	Increase by sprite width: 2
	Increase by sprite size: 3
	Increase by 1024 bytes: 0
	Decrease by 1 byte: Shift+1
	Decrease by sprite width: Shift+2
	Decrease by sprite size: Shift+3
	Decrease by 1024 bytes: Shift+0
Change colours:	C
Change address:	I
toggle step:	S
Exit:	Escape/E

EDIT SPRITE

Move sprite:	Q up A down O left P right
Change pen:	Cursor up/down
Scroll sprite:	Shift + cursor keys
Scroll window:	Control + cursor keys
Plot point:	Space
Exit:	Escape/E
Sprite Effect	Return/Enter

SPRITE TABLE

Move sprite:	Q up A down O left P right
Toggle step:	S
Change Page:	Cursor up/down
Exit fixing:	Space
Exit not fixing:	Escape/E

SELECT SPRITE

(used in Fetch from table, View Animation and Copy Sprite).

Select Sprite:	Cursor left/right
Exit/select:	Space

VIEW ANIMATION

Increase delay:	Cursor right
Decrease delay:	Cursor left

SET COLOURS

Select pen:	Cursor left/right
Select ink:	Cursor up/down
Change page:	Control+cursor up/down
Exit:	Escape/E

EDITOR

Line up/down:	Cursor up/down
Page up/down:	Control+cursor up/down
Enter text:	\ (Enter to end)
Enter byte:	.
Exit:	Escape/E

DISASSEMBLER

Type 1: #0000 LD (#4544),A
Type 2: #0000 2DE LD (#4544),A
Type 3: #0000 32 44 45 2DE LD (#4544),A

Any key to pause any different key to resume. Same key twice exits.

MULTI-VIEW

Select Window (1-4):	W
Enter start address:	S
Enter end address:	E
Disassemble:	D
Hexadecimal dump:	H
Ascii character dump:	A
Help:	?
Quit:	Q

PRINTER

Entering control codes:

Enter codes separated by pressing return, return/enter to end.

SEARCH

Entering Search bytes:

Enter codes separated by pressing return, return/enter to end.

SPRITE TABLE FORMAT

The sprite table consists of two files. The first file consists of the table information whilst the second file is the sprite data organised sequentially.

The format of the first file is:

Bytes	Use
0+1	Number of sprites in table.
2	Mode of sprites in table (0 or 1).
3	Border colour.
4-19	Ink 0 to ink 15.
20	Number of pages in table.
21-30	Not used.
31-end	Sprite information (see below).

Sprite Information

11 bytes per sprite.

Bytes	Use
0+1	Sprite number (0-740).
2+3	Size of sprite.
4+5	Original address of sprite.
6	Height of sprite.
7	Width of sprite.
8-10	System use.

Sprite table

Upto 255 pages holding a maximum of 740 sprites.

COLOURS

SOFTWARE	COLOUR	HARDWARE
0	Black	20
1	Blue	4
2	Bright Blue	21
3	Red	28
4	Magenta	24
5	Mauve	29
6	Bright Red	12
7	Purple	5
8	Bright Magenta	13
9	Green	22
10	Cyan	6
11	Sky Blue	23
12	Yellow	30
13	White	0
14	Pastel Blue	31
15	Orange	14
16	Pink	7
17	Pastel Magenta	15
18	Bright Green	18
19	Sea Green	2
20	Bright Cyan	19
21	Lime	26
22	Pastel Green	25
23	Pastel Cyan	27
24	Bright Yellow	10
25	Pastel Yellow	3
26	Bright White	11