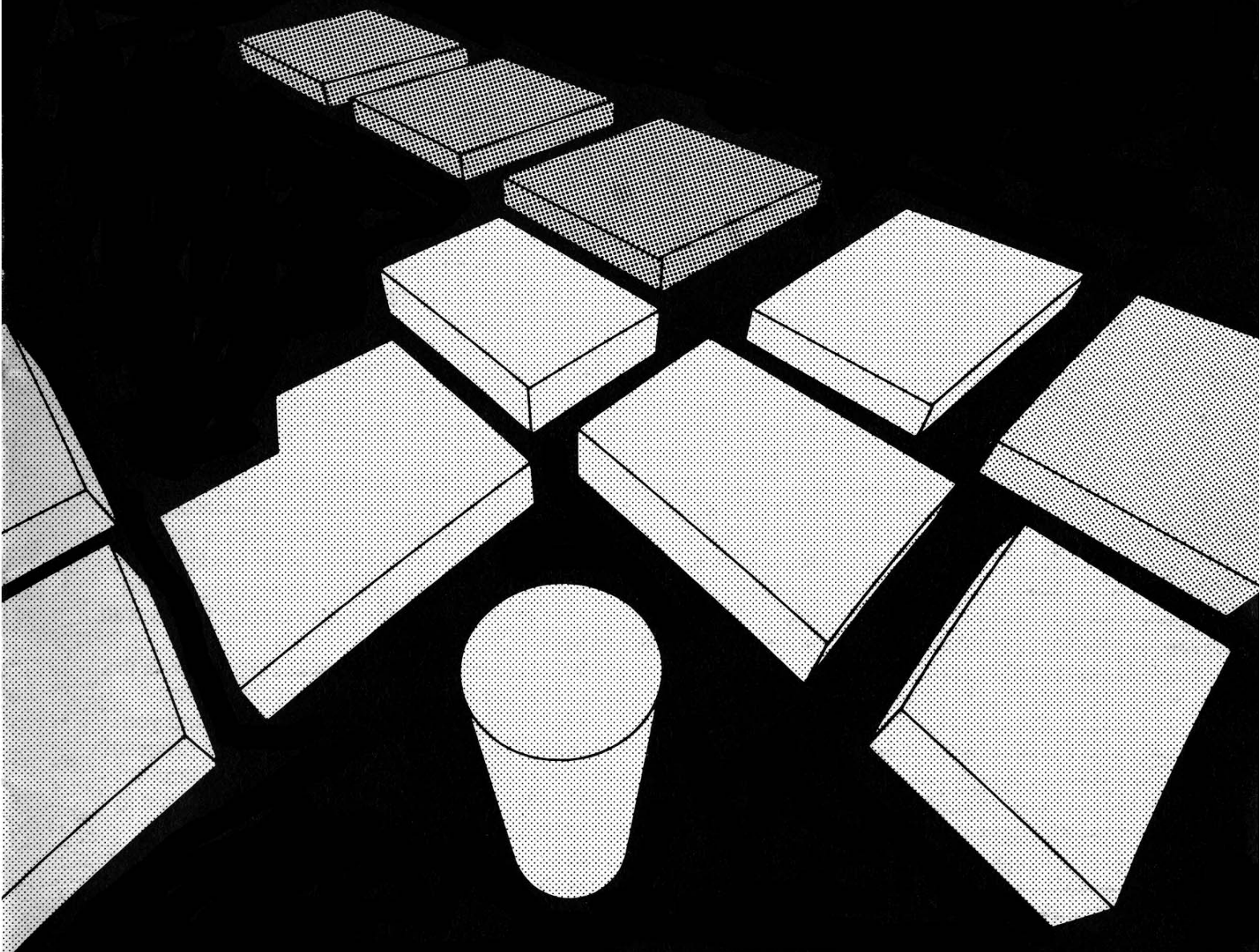
ENTERPRISE



DEMONSTRATION MANUAL

GETTING STARTED

Set up your computer as explained in the Setting-up Guide, connecting leads from IN on the Enterprise to OUT/EAR/LOAD on the cassette player and REM on the Enterprise to REM on the cassette player. If your tape recorder does not have a Remote socket, do not worry. The demonstration cassette will still work.

LOADING THE PROGRAM

Press the START key on the Enterprise (Function Key 1) and then press PLAY on your cassette recorder. You will see the word SEARCHING appear at the top of the screen, and then LOADING INTRO.

The computer will load each program and start it automatically if you have a Remote socket on your cassette recorder connected to the computer. If you do not, watch for the words LOADING INTRO or LOADING MODES or the other parts of this cassette to disappear.

You will then hear a pinging sound. Press the STOP button on your cassette recorder immediately. When you want the next part of the cassette, you will see the word SEARCHING appear at the top of the screen again. Press the PLAY button on the cassette player, and repeat the process when the program is loaded and you hear the pings.

This demo cassette has two sides. For the second side, you will have to turn the cassette over and rewind it. If you have headphones, put them on for the first two programs on the second side to hear the stereo sound at its best.

This cassette demonstrates various aspects of the Enterprise graphics and sound. Almost all the instructions you need are on the screen, but this manual will explain how to play the games and in some cases, explain how they work and how you can modify them yourself. They are all written in Basic programming language, and you will be able to see that you can do some spectacular things with a few simple instructions.

If you want to examine how any of the programs work, press the STOP key. Now type in TEXT or press Function Key 5. This will clear any graphics already on the screen. Then type LIST and you will be able to see the program. Press the HOLD key if the program is scrolling too quickly, and press it again to continue scrolling. Once you have made your amendments, or even if you just want to look at the program, press START (Function Key 1) and the program will begin again.

The different programs on this tape are all 'chained' together, so that the computer can load and run them automatically one after the other. To change a program, you have to break out of the 'chain'. It's probably best to go through the whole tape at least once before you start modifying anything.

Each individual program, you will notice, has its own name. So you can just load the part you want by typing, say, LOAD "DRAW".

Don't worry if you amend a program and it doesn't work. This will not spoil the demonstration programs. At worst, you may have to reload the program off the tape. You are only affecting the program currently in the computer's memory. The 'original' is safe on the demo cassette tape.

SIDE ONE

GRAPHICS MODES

This is a demonstration of the different modes which you can use for programming on the Enterprise. The more colours you use, the more memory is required.

The Enterprise can display 256 colours on screen at the same time. The first demonstration shows all these colours. This is followed by demonstrations of the various modes in high resolution and low resolution. Where there are more than two colours, the picture will change to show you all the colours.

SLIDING SQUARES PUZZLE

This is a computer version of the puzzle which involves shuffling square tiles into a particular order.

The computer draws the 15 squares - lettered A to O - in alphabetical order:

A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	

then shuffles them. You must shuffle them back into this order.

To move the squares use the Joystick to move the space. Move the Joystick right, and the space will swap places with the square to the right; move it left and it will swap places with the square on the left, and so on. But be careful - if you hold the joystick over too long, the space will move more than one square!

When the squares are back in order, the computer will display Well Done!

Press any key to play again; press ESC to quit and move on to the next part of the program.

SKETCH PAD

This program turns your Enterprise into a sketch pad, with a selection of coloured pens.

Your selection of colours is displayed along the top of the screen, and the menu of commands along the bottom. You have a blank screen, with your position marked by a small flashing cross. Move the cursor with the Joystick.

The pen can either be Up or Down. If it is Up it does not draw a line when you move the cursor, it just changes position. If it is Down, it draws a line.

Press P to raise and lower the pen. (Note that when the computer first sets up the program, the pen is Up).

You can change the colour of your pen by pressing I. If you continue to press it, the coloured circle will move through the palette of colours to the one of your choice.

OTHER COMMANDS

F - Fill

This lets you colour in a shape. (There must be no holes in the outline, or the colour will 'leak out'). Draw the shape, lift the pen Up, move the cursor to the centre (approximately) of the shape, select the colour you want to fill with, then press F.

H - Hold

H stops the program, switching the cursor off so that you can display and examine your picture.

ERASE - Use Erase key to erase picture.

This rubs out your current picture, and draws you a new 'sheet

of paper'.

C - Colouring Book

C displays another sheet of paper, with three familiar characters drawn on it, ready for you to colour - or modify. Use ERASE to go back to a blank sheet of paper.

CHANGING YOUR SELECTION OF COLOURS

You can alter the selection of pen colours by setting up a different palette. Press the STOP key.
Enter TEXT (Function 5) key mode, then type LIST 610.
610 SET PALETTE .....

The PALETTE command must be followed by eight numbers between 0 and 255 inclusive, separated by commas. You can either experiment randomly, or try to build up a palette of particular colours - perhaps a range of greys, for example. See the Enterprise Programming Manual for details of PALETTE - and the RGB command.

Rerun the program with the START (Function 1) key.

FRACTALS

This program uses the turtle graphics commands (see the Programming Manual), with which you can:
PLOT ANGLE, PLOT LEFT, PLOT RIGHT, PLOT FORWARD, PLOT BACK.

Using these commands, you can create 'recursive' patterns. The program demonstrates two possible patterns.

CHANGING THE PROGRAM

Press the STOP key, then add the following lines to the beginning of the program:

```
10 DO
20 GRAPHICS HIRES 4
30 INPUT PROMPT "Size?":S
40 OPTION ANGLE DEGREES
50 PLOT 600, 100; ANGLE 90;
60 CALL TREE(S)
70 WAIT DELAY 3
80 LOOP
90 END
```

Now run the program by pressing the START (Function 1) key. The computer will ask: Size? It wants you to choose the size (length) of the tree trunk. Type in a number under 100 and press ENTER. Each subsequent trunk/branch is shown ¾ the size of the previous one, so when you choose the size of the trunk, in effect you are choosing the size of the entire tree.

The computer carries on drawing a branch until the size goes below a specified value (in this program specified in line 660), then it goes back to the position where it last branched, carries on drawing until it hits the minimum values, goes back to the last place where it branched, carries on drawing . . . and so on, until it completes the tree.

If you change the line 660, you can alter the complexity of the tree - increase the minimum value and the tree will be less detailed, decrease it and it will be more detailed (and take longer to draw!). Try:
660 If N <THEN EXIT DEF
and the computer will draw a less detailed tree.

If you want to play with the 'greek key' pattern, change lines 30 and 60 of the above program to:

```
30 INPUT PROMPT "SIZE?, LEVEL?":S,L
60 CALL FOO(S,L,1)
```

Here you are choosing the size (length) of each line in the pattern and the level of 'recursion'. Try:

16,3 [ENTER]

to start with. When you are asked Size? Level?, experiment by putting in numbers which are too large. Don't worry; it won't damage the program. The computer will come back with an error message to tell you why it can't do a certain thing.

Just LIST the line you want again, and change the values.

ANIMAN

Animan animates stick men by defining four rows of figures in four successive postures, then moves through the rows using the DISPLAY command – displaying the first row four times down the screen, then the second row four times down the screen, then the third row . . . and so on. The men appear to walk on the spot, and show how simply you can 'animate' figures on the screen.

SIDE TWO

CHARACTER DEFINER AND CITY BOMBER

Each Enterprise character – A, B, C . . . $, %, , * and so on – is made up on a grid of 9 x 8 dots. Some of the dots (the character) are displayed in Ink colour, the rest (the background) are displayed in Paper colour. The Enterprise lets you define characters 128 to 159 yourself, and use them just like ordinary characters.

The Character Definer makes defining them easy. The computer displays a menu:

1 Play Game
2 Character Definer
ESC to leave Program

Press 2, and call up the Character Definer. The computer displays:

* on the left, a grid representing the 9 x 8 dots;
* in the middle, a selection of predefined characters;
* on the right, a menu of commands

and asks:
CHARACTER NUMBERS (128 - 159)?
Enter the number of the character you want to define. The computer will redraw the grid with a flashing red cursor in the top left-hand corner.

Use the Joystick to move the cursor and design a character by creating a pattern of dots in the grid with the commands listed below. Notice that when you have defined a character, it is incorporated into the selection of predefined characters in the middle of the screen.

SPACE BAR – Fills or unfills the square marked by the cursor.
C – Clears grid.
D – Defines character: that is, it programs the character you have drawn into the computer's memory, displays it on the screen, and lists the command you would use to define the character in a Basic program.
H – Horizontal: reflects the character about the grid's horizontal axis.
I – Inverse video. If you press this key, the filled squares become unfilled, and vice versa.
N – Next. Abandons the current character and resets the grid ready for the next character.
Q – Quits character definer to play City Bomber.
V – Vertical; reflects character about the grid's vertical axis.
R – Recalls a previously defined character or one of the Enterprise's other characters from the character set. You will note that you can pick any character from 32 to 159. Experiment with these and find out what the other characters are.

You will notice that characters 128-134 are used for the game City Bomber.
128 and 129 Building
130 and 131 Plane

132 Bomb
133 and 134 Explosion
If you redefine these characters, it will affect the game. You will soon learn to modify the shapes to turn the buildings into, say, fir trees. Perhaps you can make the plane into a spaceship and the bomb into a rocket. And you can make the explosion more elaborate.

DEFINING CHARACTERS FOR YOUR OWN PROGRAMS

If you delete the CITY BOMBER program, you can save a more versatile version of the Character Definer. Here's how to do it.
DELETE FIRST TO 1035
DELETE 1470
DELETE 2580 TO LAST
to delete the game.
Change line 1440 to:
1440 IF LC$= "q" THEN KEY= 27
then SAVE the new version to a new cassette tape (not the demo tape).

Now when you're writing a program which involves defining characters, you can load the Character Definer, design your own characters, and use the values displayed at the bottom of the screen to define them in your program.

(When you delete the Character Definer, the characters you've defined are stored in the computer's memory until you reset them, or turn the computer off, so you can define several characters, experiment with them in your program, then type in the definition of the most suitable.)

Notice that when you define characters in your program, you label them 0, 1, 2, 3 . . . not 128, 129, 130 . . . For example, if you define character 128, you:
SET CHARACTER 0
If you define character 129, you:
SET CHARACTER 1
and so on.

CITY BOMBER GAME

You are flying an aeroplane over a city of sky scrapers. The plane is getting lower and lower. Your only hope of landing safely is to bomb the city and destroy the buildings. Press the SPACE BAR to drop a bomb.

Whether you crash or land, the computer will display a suitable message and start again. If you want to move on to the next program, press ESC.

ALTERING THE GAME

You can make the game more difficult by altering the program slightly.

Break out of the program using the STOP key and enter TEXT mode by pressing the TEXT (Function 5) key.

MAKING THE PLANE START LOWER

You can make the plane start lower down the screen by altering part of line 170. Change:
70 I= 1
to a larger number, like I= 5. Be careful not to alter the other values.

MAKING THE PLANE DESCEND FASTER

You can make the plane descend faster by altering line 350:
50 LET I= I+2

to
50 LET I= I+3
or you can even make the game easier by changing it to
350 LET I= I+1!

If you use headphones with this program, you will hear the plane "crossing" from one ear to the other, showing the Enterprise's stereo sound capability.

STEREO MUSIC

To get the best from the Enterprise's Dave chip, most programmers will use machine code. But this short demonstration shows just a few of the things that can be done with the sound from Basic.

There are two pieces demonstrated; a Spanish piece called Romanza and a standard examination piece for guitar.

A piece which would take many months of practice on a guitar can be quickly written on the Enterprise, synchronising the sounds and using only two of the four sound channels available.

WORD PROCESSOR

The computer automatically calls up the word processor. Press Function 1 and the computer will display:
LOAD A DOCUMENT.
TYPE FILENAME AND THEN ENTER
and type:
EXAMPLE and press ENTER.
The computer will read in the EXAMPLE file from the tape – a letter from a satisfied Enterprise owner!

You can now experiment with the word processor. (Try, for example, justifying the text or amending the letter to express your own feelings!)

You will find details of the various commands in the Enterprise Programming Manual. Alternatively, you can press the HELP (Function 4) key and a summary of the commands will appear on the screen.

THE INTERLACE DRIVER

The interlace driver is a device that can be loaded from tape, doubling the vertical resolution of text and graphics pages. It works best with long persistence monitors which minimise the flicker which otherwise can occur.

To load the interlace driver, place the cassette containing the driver into your tape player and type: LOAD "INTERLACE". Or you can just type LOAD if the interlace driver is the next file on the tape.

When the driver has loaded from the tape it will automatically initialise itself, becoming the next EXOS VIDEO device, and as such it replaces the existing VIDEO device which can no longer be used until the system is RESET. At this stage the screen will have cleared and it should say OK at the top left.

The interlace driver has a software text mode and a hires graphics mode. The default BASIC TEXT page has 80 columns and 50 rows of characters. (TEXT 80 and TEXT 40 commands will both result in a screen of this size, as the interlace driver assumes that the user requires the screen resolution that it can offer or it wouldn't have been loaded in the first place). The default BASIC GRAPHICS page has 20 lines of GRAPHICS (giving a resolution of 640 horizontally and 360 vertically in two colour mode) and 8 lines of text beneath it, following the same format as the built in video driver.

Note that although the graphics screen has twice the vertical

resolution it still uses the same user co-ordinates as the built in video driver, ie. 1280 x 720 for the BASIC GRAPHICS screen. As all the graphics features of standard high resolution graphics pages are supported by the interlace driver, programs written for the built in driver should work on the interlace driver with little or no modifications necessary.

With the interlace driver in place, the high resolution provided means that the screen takes up about 40k of memory and on a 64k machine the user is left with just under 7k for programs and data. However on a machine with more RAM there will be no limitation on the size of a program, beyond that of BASIC itself.

The word processing functions built into the ENTERPRISE are not compatible with the interlace driver. A separate word processing program could take advantage of these facilities, this would require some memory expansion. Attempting to enter the word processor will corrupt the interlace driver.

INDIVIDUAL PROGRAM NAMES

Each portion of the demonstration cassette can be loaded using LOAD and the appropriate name with quotation marks around it. For example, LOAD "ANIMAN"

Title page	- INTRO
Graphics Modes	- MODES
Sliding Squares	- SQUARES
Sketch Pad	- DRAW
Fractals	- FRACTALS
Animan	- ANIMAN
Character Definer and City Bomber	- CHAR
Stereo Sound	- MUSIC
Example Letter Filename	- EXAMPLE
Interlace Driver	- INTERLACE

© 1984 Enterprise Computers Ltd
Typesetting by Words & Pictures Ltd.
Printed in England

Note that this document does not constitute
a description of goods, and that details of the machine
and its performance are subject to change.