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ZX Spectrum[®]

BEYOND BASIC

SOFTWARE BY



**Incognito
Software Ltd.**

**CASSETTE
48K RAM**

USER MANUAL FOR BEYOND BASIC

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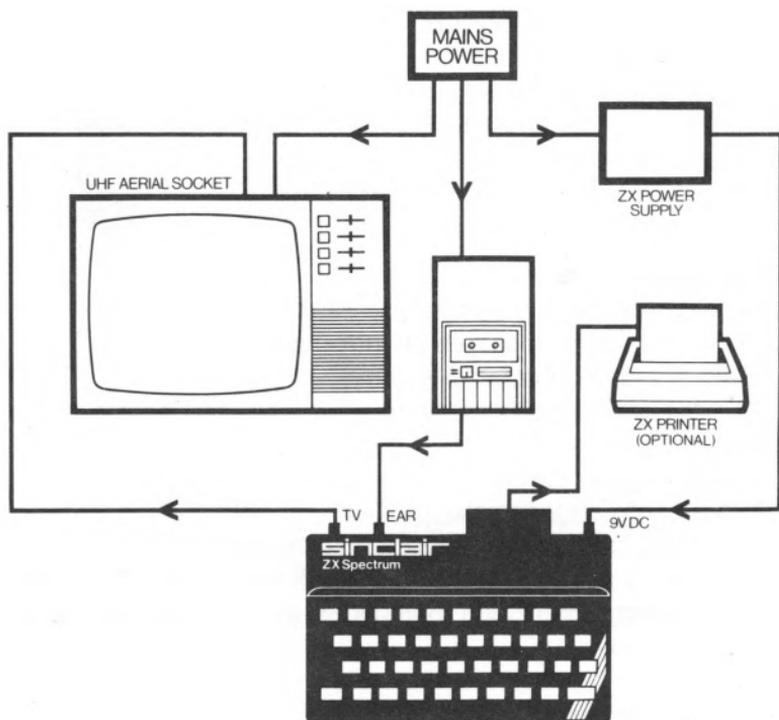
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Introduction

BEYOND BASIC is designed to give you a deeper insight into the workings of your ZX Spectrum than you may have at present. It explains what happens inside your micro when you run a program, and it teaches you some simple aspects of Z80 machine-code programming.

A major feature of ***BEYOND BASIC*** is the experimental phase. Here, you write your own Z80 Assembler programs-then you can actually see on the screen how they affect memory and registers as they run.

The program is not itself a true Z80 Assembler, neither does it attempt to teach you all Z80 instructions. It does, however, aim at giving you enough confidence about assembler to enable you to learn more-perhaps through text books which may, at this stage, seem too technical.



How to connect your ZX Spectrum

Operating instructions

The diagram shows you to connect your ZX Spectrum, TV, tape recorder and ZX Printer. When everything is set up, load the program with the command:

LOAD

Start your cassette player and then press the ENTER key on your Spectrum. The program will load in two stages; it takes about four minutes. Turn off the tape recorder when you see the 'welcome' message. The program will then start.

Using the program

When you have loaded the program and read the four frames of introduction, you then first have the choice of selecting:

- 1 Store & register overview
- 2 Assembler commands tutor
- 3 Create & run your program
- 4 Return to BASIC.

Select the phase you want simply by pressing the number indicated on your TV display and ENTER. It is always possible to skip backwards and forwards between phases as you wish, but initially you should go through the phases in order.

1 Store & register overview

This phase explains certain basic concepts of the construction and working of a computer. It includes an introduction to:

- RAM (Random Access Memory)
- ROM (Read Only Memory)
- Registers
- Simple machine instructions
- Program counter register

The machine instructions introduced are not initially Z80 operations. They are introduced as simple, BASIC-like commands, which slowly become more and more like true Z80 codes as more concepts are explained.

2 Assembler commands tutor

This phase teaches a powerful sub-set of true Z80 Assembler instructions. A written explanation and a 'moving' example are shown

for each command. The example will show what effects obeying a particular command has on memory and registers.

You may go through all the commands and points in order, or select items individually. This mode of working is particularly useful later on, when you are in the middle of creating an assembler program and need to be reminded of the exact function of a particular command.

3 Create & run your program

This phase enables you to consolidate everything you have learnt so far by writing your own Z80 Assembler programs. You can then watch what happens when a program is executed by the changing display of storage and register values on your screen.

This phase offers you editing facilities to amend your assembler code or storage values. You can easily skip back and forth in the code-to see a particular section run again-or you can return to the tuition sections to revise instruction formats.

If you wish, you can SAVE and RELOAD your assembler programs.

4 Return to BASIC

When you finally wish to return to BASIC programming on your ZX Spectrum, this selection enables you to do so.

Philosophy

We have deliberately kept the assembler concepts taught in *BEYOND BASIC* simple. The main aim of the program is to give the newcomer enough information to make learning easy. Too much information is confusing: for this reason, we have not given details of how addresses are stored in Z80 machine code. We have 'predefined' a number of memory locations for you, and used a convention to indicate that you should refer to the *address* of a location rather than to its *contents*. This is fully described within the program itself.

The TV display reflects this simplified view. We hope that the *BEYOND BASIC* introduction to assembler will encourage you to read further books or programs on Z80 Assembler.