



SMOOTH OPERATORS



The Manager

Every computer has some form of operating system — a program that manages the running of the computer and controls all the devices attached to the system.

The operating system is a vital part of any computer because it forms a link between the hardware and software. Yet because operating systems do most of their work in the background, many people, especially home computer users, are hardly aware they exist. To help put the record straight we present an overview of operating systems.

High-level languages allow the programmer to be isolated from the inner workings of the CPU and make for greater portability of programs between one system and another. Provided that a language is reasonably standardised, instructions should work on any machine supporting the language. The interpreter or compiler that processes the high-level language source code takes care of the details of memory allocation and so on. The high-level interpreter or compiler is also a program and it must be loaded into main memory before it can convert the high-level source code into object code instructions ready for execution. BASICs in ROM are already, permanently, present in memory and ready for use as soon as the machine is switched on.

However, there's more to operating a computer

than just having a program in it able to convert source code into machine code. There needs to be yet another program running in the background that concerns itself with the 'housekeeping'. As an example of housekeeping, consider the problem of getting a letter typed in on the keyboard to appear on the screen. Somewhere in memory there has to be a program telling the CPU constantly to check the keyboard to see if a key has been pressed. If one has, the program has to work out which key it was, and then it has to instruct the video circuitry to produce the right pattern of dots, in the right sequence, for output to the screen. Activities such as this are said to be 'transparent' to the user.

Similarly, when a command such as CLOAD is issued to save a file on cassette, the programmer is not concerned about how the data is converted into a form suitable for cassette storage; it's all part of the operating system.

The operating system is the background program that runs continuously, supervising everything else. A slight source of confusion arises when the computer in question is a ROM-based small computer system with a built-in BASIC, because the BASIC and the operating system are often held on the same ROM. In its simplest