HOW DO YOU DO?

We look at further aspects of the operation of a communications system involving a home micro and a modem. In particular, we explain what is meant by the term 'duplex', and discuss the protocols necessary before two home computers can communicate information between one another.

The term "duplex' tells us whether or not a system can transmit and receive data at the same time. A full-duplex system allows bi-directional data transfer, while half-duplex systems do not. This can be likened to the difference between talking on a telephone, where both parties can talk at the same time, and using a CB radio, where pressing the transmit button automatically prevents you from receiving.

The main advantage of a full-duplex system is its ability to interrupt the transmitting computer. If, for example, it is transmitting a long menu and you already know that you want option 1, you can press '1' and the system will immediately act on that input. In a half-duplex system, you would have to wait until the menu had been completely transmitted before you made your selection.

Full duplex is obtained by using different frequencies for each computer. The computer making the call uses a frequency known as the 'originate', while the host computer uses the 'answer' frequency.

TERMINAL PROTOCOLS

When a computer transmits data to another over a telephone line, it initially knows nothing about the computer at the receiving end. The terminal could be a Spectrum with a 32-column display or a 132-column teletype. It may or may not have colour. It may or may not support lower case characters. In short, it could be anything from a micro to a mainframe.

There are three ways of dealing with this problem. The first is the approach adopted by the BASICODE language (see page 241), which assumes the lowest common denominator and transmits only those formats that the most poorly-equipped terminal can handle. The second is to ask for information about the capabilities of the particular terminal and then modify the output to suit it. The other approach is where the system assumes that it has accessed a particular terminal, or range of terminals, and leaves the user's software to cope with the transmitted data.

The first approach is rarely used, since the lowest common denominator among terminals is the teletype standard. This has an upper-case character set only, no print formatting, no colour, no graphics and a slow speed. The second

Out Of Place
Advertisements often show portable micros and battery-powered acoustic modems being used in all sorts of unlikely places, but there are some situations where you *can't* use them. A few examples are ordinary payphones, manually-operated switchboards (used in many hotels) and on static-filled lines (a problem in many remote areas)