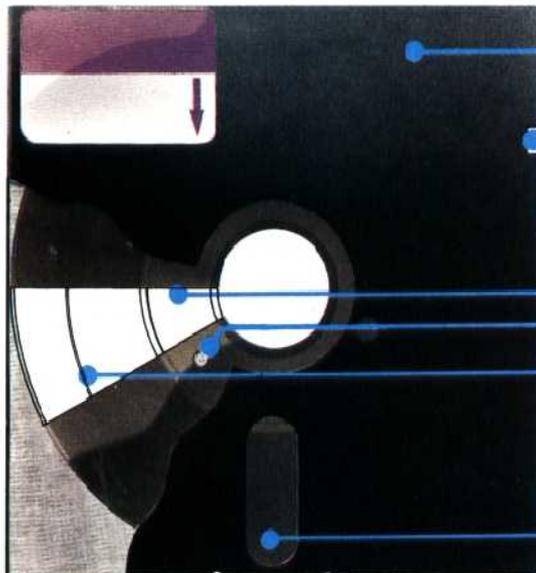




Flat Spin

Magnetic disks spin at high speed, within disk drives, carrying information that can be 'read' by your computer



DAVID WEEKS

The Floppy Disk

The surface of a disk is divided up into a number of separate bands called tracks. These tracks are further subdivided into sectors. On the Apple II, for example, each track is divided into 16 sectors. Each sector has an address field and a data field.

The Disk Operating System accesses the individual sectors on a track by using the address field, which contains the track and the sector numbers, and an identifier (to check that the user is reading the right disk). Thus it can retrieve information in much the same way as it is retrieved from a memory location (by using its address)

Home computers will 'forget' everything you have programmed them with once the power is switched off. At best this can be a minor irritation, at worst a major disaster as an entire evening's programming disappears for good. For this very reason, the makers of home computers incorporate a method by which the contents of the computer's memory can be permanently stored. This usually takes the form of a cassette tape on which the program is stored digitally as a series of tones (see page 94).

However, when dealing with long programs, or a collection of small programs that need to be frequently used, the time taken to find and load the program from a cassette can be a major setback. There are two reasons for this. This first is that a tape must be started at the beginning in order to locate a program recorded on it - although cassette recorders with tape counters greatly assist here.

The second cause of the problem is the way in which the program is stored. The patterns of bits held in the memory have to be converted into a corresponding sequence of tones: a high tone represents a bit that is on (or set to one), and the lower tone represents a bit that is off (or set to zero). These tones must then be recorded onto the cassette tape. The fastest practical rate at which this transfer can occur is 150 bytes a second. Any

faster, and the possibility of errors increases to the point where the system fails to be reliable.

A conventional cassette system using C-10 tape can take as long as five minutes on each side to find and locate a program. This is assuming that a fast loading system is being used. Some systems work as slowly as 30 bytes a second. For those long programs you really need a recording system that will find the beginning of the program and load it in a matter of seconds.

Such a storage system is the floppy disk and it can be used on most of today's home computers. If you imagine the yards of tape stored inside a cassette tape laid out in the form of a spinning disk some five inches across, you will appreciate how quickly any information stored on the disk can be located. This disk is placed inside a protective envelope and slotted inside a disk drive.

The drive's function is to spin the disk (inside its envelope) at a constant speed, and to provide a means of transferring programs on and off the disk from the computer. It does this through a recording and playback head, similar to that on a cassette recorder, but very much smaller. This head can move backwards and forwards across the surface of the spinning disk, unlike the cassette, which can only move the tape past the head.

Analogue Board

This circuitry converts the signals coming from or going to the head. It translates the digital form used in the machine to the analogue form that goes on the disk



Indicator

This Light Emitting Diode shows whether access is being made to the disk drive

Driving Hub

This engages with the plastic disk and spins it round inside the envelope

Care Of Your Disk

Floppy disks are delicate and should be handled with respect. Follow the manufacturer's recommendations carefully



DON'T BEND!



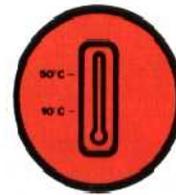
DON'T STACK!



KEEP AWAY FROM MAGNETS



STORE CAREFULLY



KEEP AT ROOM TEMPERATURE