

Ribbon Cable

Information is transferred to and from the disk drive by way of the ribbon cable. It contains the eight-bit data path, and other control signals

Ribbon Cable Connector

This provides secure, yet detachable, connection of the ribbon cable

Driver Motor

This spins the driving hub

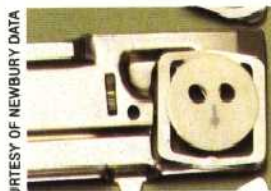
Read/Write Head

Stepper Motor And Drive Screw

A very accurate electric motor that moves the head across the surface of the disk

Cantilever/Loading Mechanism

Connected to the door flap, this lever mechanism ensures the disk's precise location on the driving hub



Read/Write Head

This is a highly magnified picture of the head that reads and writes data to the surface of the disk. It is similar to the head on a cassette recorder, but almost invisible to the naked eye.

Unlike a tape that is just one long string of bytes, a disk is 'formatted' in a series of concentric circles, each of which is treated by the system as small chunks, usually 256 bytes each. Each of these 'sectors' has an address.

When a program is to be written to the disk, the first thing that happens is that the head is moved to the directory, a special file which acts as an index to the whole disk. This is examined to find out where to put the file. If it's being re-written, the first sector of the old copy is found, and the new data is stored starting there. A new file won't have an entry in the directory, so one must be made, then the first empty sector is filled with the data, with more sectors being filled as required.

The advantages of high-speed efficiency and large storage capacity offered by the disk explain

the substantial difference in price between the two systems. Disk drives sell from about £120, whereas a cassette player is usually less than £20.

The most important factor in this price difference is the precise engineering that is required. The recording and playback head of a disk drive is almost invisible and must be placed to within hundredths of an inch.

The mechanism that moves this minute head is based on an electric motor, which can turn by fractions of a degree. This is coupled to a shaft that carries the head and moves it across the surface of the disk in minutely calculated steps. To ensure that the disk spins at a constant speed, complex electronics are used and all the components are mounted on a rugged die-cast frame to reduce the effects of heat and vibration.