



**Disc**

Information is encoded digitally in the form of pits, etched photographically onto foil. The pits are only 0.5 micrometres (0.0005mm) wide, by 0.1 micrometres deep

**Digital Processing**

The Philips/Sony system uses 16-bit data, yielding 65,536 sound levels. When a recording is made, the sound is sampled and digitised 44,100 times a second

**Lens**

The beam of light is accurately focused onto the foil inside the disk, so that any dust or dirt on the surface will usually be out of focus and therefore ignored

**Focusing Coil**

This miniature coil acts as a servo-mechanism, keeping the light beam in sharp focus

**Prism**

The light passes straight through this prism from the laser diode to the lens, but light reflected back from the disc is diverted by the prism onto the photodiode

**Photodiode**

Pits scatter the light, whereas the foil reflects it. This device converts the light signal into an electronic sequence of 1s and 0s

**Laser Diode**

This device is similar to a conventional LED, but emits invisible infra-red light

**Error Correction Circuitry**

A high level of 'redundancy' is built into the recording, so that any bit errors do not result in corrupted sound. In theory, a 2mm hole could be drilled anywhere in the disc without affecting the sound

**User Controls**

The controls are geared towards selecting tracks and programmes on a music disc. However, dedicated computer peripherals using CD (Compact Disc) technology will be available in the future

EQUIPMENT COURTESY OF PHILIPS