

Computer Tips

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Understanding Your PC—Part 4

You push the power button on your computer. The lights come on, the monitor screen flashes, the fans whir. White writing appears on the screen, informing you of your PC's startup routine. Suddenly a message appears, stating: "No operating system found. Please insert boot disk to continue."

Ever had this happen to you? The operating system, or Windows, as many of you will know it, must be stored inside the computer, to be available every time you use it. This storage space inside your computer is called...

The Hard Drive

The hard drive is a rather amazing piece of technology. The drive is made up of several metal disks, coated on both sides with magnetic particles, similar to the particles on cassette and video tapes. These metal disks are stacked one on top of the other, around a central spindle, which is driven by a 12 volt motor. Interspaced between the layers of disks are metal arms, called fingers, which have at their tips the heads which read the metal disks. The heads do not actually touch the disks, but are spaced ever so closely to them, closer than a hairs width. The 12 volt motor spins the metal disks at either 5400, 7200, or 10,000 rpm, depending on the type of hard drive. All these parts are enclosed in an alloy case, which is sealed to keep out the dust.

Your hard drive today can hold a massive amount of data. Depending on the number of disks, and how they are divided, your hard drive can hold up to 400GB of data. That is 400,000 MB, or the equivalent of 16,000,000 copies of this article. To achieve this, the magnetic disks are divided into tracks, which are then divided into cylinders, then sectors. This is much like how a town is laid out. The tracks are the streets, the cylinders are the house blocks, and the sectors are the buildings on the blocks. There can be different sized sectors, depending how the magnetic particles are laid out.

So how is your Windows operating system stored on the hard drive? First, your hard drive's tracks, cylinders, and sectors must be laid out and identified. This is called "formatting". Once the hard drive's layout is organized, then the files of Windows can be slotted into place. This is known as "installing" Windows. Once this process is complete, then next time you turn on your computer, the startup routine will find the first file of Windows on the hard drive, called the "boot sector". Then the other files in the process can be found, and Windows starts up.

A hard drive should always be handled carefully. A hard drive can only handle approximately 85 to 300 grams of shock, before damage to the heads will result. This is equivalent to dropping the hard drive onto a hard surface from 10 cms. If treated well, hard drives run reliably for several years.

For any PC questions or problems, please call us on 0419 790 071, or email us at info@mcsyarraman.com.au, or visit our site.

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