From the depths of my memory

My first job after leaving St Andrew's University in Scotland was as a Trainee Programmer at NCR in Dundee in 1968. They had a NCR315 for payroll, finance and stock control and NCR also ran a computer bureau which was used by many local companies. When prospective customers came to view the 315 we demonstrated the power and speed of the paper tape reader by trimming the loose end of tape to a point and showing how it could slice through the middle of a sheet of A4 paper held some 3 feet from the reader.

Another party trick was developed after discovering that a transistor radio would emit musical notes when certain commands were sent to the CRAM unit (Card Random Access Memory) that it was stood on. "Happy Birthday To You" was frequently heard in the computer room and occasionally a duet - two radios on two units giving two voices - which, apparently, was horrendously difficult to write. My memory could be wrong but I think it was "Baa Baa Black Sheep".

The Dundee site was a major manufacturing plant, cash registers, accounting machines and computers. By far the most fascinating area was where they made the RMS memory for the later models of 315 and subsequent platforms. (RMS: Rod Memory System) This was NCR's very clever way of mass producing computer memory which hitherto had to be hand made by people who knitted ferrite doughnuts onto arrays of fine wires.
The RMS machine was fed at one end with thick ferrite wire, very thin wire and, as I recollect, Perspex about 6" wide. The Perspex was cut into square sheets and a 64 x 64 array of holes drilled in it. The ferrite wire was chopped into tiny pieces about 0.1" long and dumped onto a drilled Perspex sheet in a special station where a magnetic field aligned the ferrite rods so they'd drop into the holes in the Perspex. A simple wire-wrapping process was then used to wrap the read/write wires around the rods, this being topologically equivalent to threading wires through doughnuts and easy to automate. A brilliant piece of lateral thinking!

By 1972 I was working in London for the ITA which controlled commercial TV in the UK, and had a NCR Century system with disk drives. Being early days in disk technology they frequently had head crashes, but fortunately one of our staff had a Head Crash Recovery Kit which included a certain number of elastic bands and paper clips and a 4B oval pencil. These disk drives were loaded from the top, leaving the protective plastic cover covering the disks. As the door was closed, arms lifted the cover clear of the disk platters then a cleaning arm swept the surfaces and finally the heads were deployed.

To recover after a head crash, the outer plastic cover was removed before mounting the disks then elastic bands and paper clips used to defeat the lid-raising and cleaning arms and set certain micro-switches. One of the three pillars which contained the lid-raising arms was used to fix the 4B pencil with elastic bands so the tip touched the disk surface where the crash had occurred (there would be an obvious scratch here). The pencil graphite lubricated the surface enough for the heads to be able to read the data and the program complete successfully before the engineer arrived with a new set of heads!

NCR's head office in London was at 1000 North Circular Road (NCR) and the telephone number was NCR1000