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Hard Drive Platter Removal

Fiction:

The belief that media can be removed from a multiple platter drive and data can be successfully recovered using a Universal Media Reader.

Fact:

A Universal Hard Drive Media Reader does not exist. The operative term here is Universal. If such a thing existed, the company that owned it could, and would have by now, put all the others out of business.

Reality:

Consider the issues facing the successful creation of such a device. Every drive manufactured is improved from its predecessors by increasing aerial densities, rotation speed, and other factors. Engineering changes during a model's life span may alter the electronics, the head assembly, the number of platters, and even the casing. Changes from model to model by the same manufacturer often implement completely new head assemblies, platter coating requirements, spindle speeds, electronics, burst patterns, maintenance tracks and servo patterns. In essence, the technology constantly changes from model to model. Then factor in the number of hard drive manufacturers with their varying implementations of "standards". Then there are the different types of encoding methods and interfaces that have come and gone since the PC was created. So, the challenge to create a Universal Platter Reader becomes quite an obstacle.

In lay-terms a hard drive does not view the media as if there are several surfaces and related heads. The media is dealt with as if it were a single cylinder. Altering the orientation of one platter to another distorts the cylinder causing a failure condition thereby denying access. The adjustments required at this level are micro-fine and once misaligned, it becomes virtually impossible to realign the media. An easier way to understand this would be to imagine data being written to the platters as if each bit of data was stored in an elevator shaft. The illustrations below depict data (the arrows) that has been written to the media. Each arrow is part of the same piece of data. When the electronics "read" the data from the drive, it reassembles the pieces to produce information that is ultimately interpreted by the operating system. Figure A shows the data as written originally to a two platter drive. Figure B shows placement of the data after the platter has been moved from their original location.

Figure A

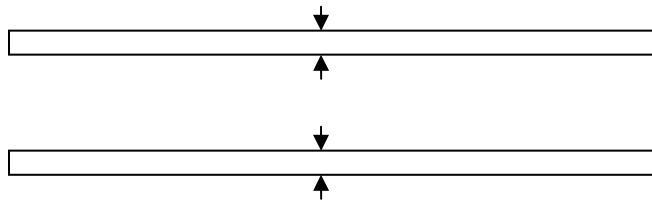
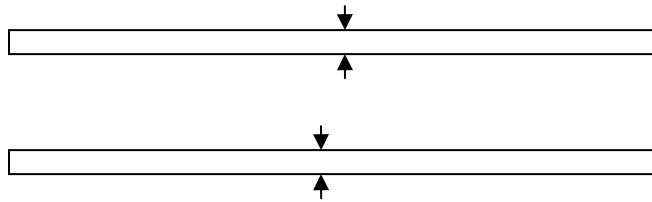


Figure B



As the data is no longer "where it belongs" (misaligned) relative to the two platters the head assembly and electronics won't be able to locate the correct data for retrieval. In a situation like this the servo pattern becomes distorted and the drive just won't reach a ready state. Likely, it will just click a few times, or repetitively, trying to locate the servo pattern. In any case, the drive is now dead and not recoverable.

On a single platter drive a qualified data recovery engineer can remove the media, place it in a like unit and expect it to work. It sounds easy, but it's not. There are many factors, skills, equipment and tooling that need to be considered to make this operation a success. If your data is important, DO NOT OPEN the sealed HDA.

All these factors considered, the existence of a Universal Hard Drive Platter Reader is not feasible. But, is there such a thing? A device similar in nature may exist, but it certainly would not be Universal.

Challenge:

If one of the data recovery service companies believes they have such a device, HowToRecoverData.com will present the company with a test case. Simply, we'll send your company some platters from a drive that worked perfectly prior to disassembly. If your company truly has a Universal Platter Reader, the drive manufacturer, model and interface of the drive won't be required will it? You'll be able to recover the data and send it back. If your company can accomplish this, we'll feature those findings and the fact that your company was successful here on HowToRecoverData.com and we'll withdraw this article.