Trouble in Paradise

**Roger Gann charts the recent troubled waters of removable storage giant, Iomega.**

This month I'm devoting the entire column to just one company — Iomega. It has had a runaway success with its removable storage products, the 100Mb Zip "super-floppy" and the 1Gb (latterly 2Gb) Jaz removable hard disk. Not only were these storage devices very affordable, well specified and fast, they were, above all, cleverly designed consumer products and they looked great. The Zip drive, although it is a proprietary format, has sold like hot cakes and some ten million units have been shipped.

But all is not rosy in the Iomega garden. Recently, its meteoric performance as a company began to wane, losses were announced and staff were laid off. Problems with the Zip and Jaz drives began to surface; in particular, the ominous-sounding Click of Death.

Death wish

Click Of Death, Click Death, and COD are the various names ascribed to a problem facing Zip (and to a lesser extent Jaz) users. The symptoms are easy enough to describe: without warning, a drive begins emitting a series of audible and distinctive clicking sounds, either when a cartridge is first inserted or when attempting to read or write data to or from a previously inserted cartridge.

That explains the "Click'" part; what about the "Death" bit? This refers to the demise of the drive itself, often taking a disk-full of data with it. Since people tend to rely on their Zip and Jaz cartridges for the storage of their important data, this loss can be serious. And, the data loss can involve more than one disk, magnifying the total loss. No one knows for sure how many drives are affected in this way, but some have guesstimated at as many as 100,000, or one percent of the ten million Zip drives. I've not experienced the problem, thankfully.

▲ FIG 1 GIVE YOUR ZIP OR JAZ DRIVE A THOROUGH HEALTH CHECK WITH THE TIP.EXE UTILITY
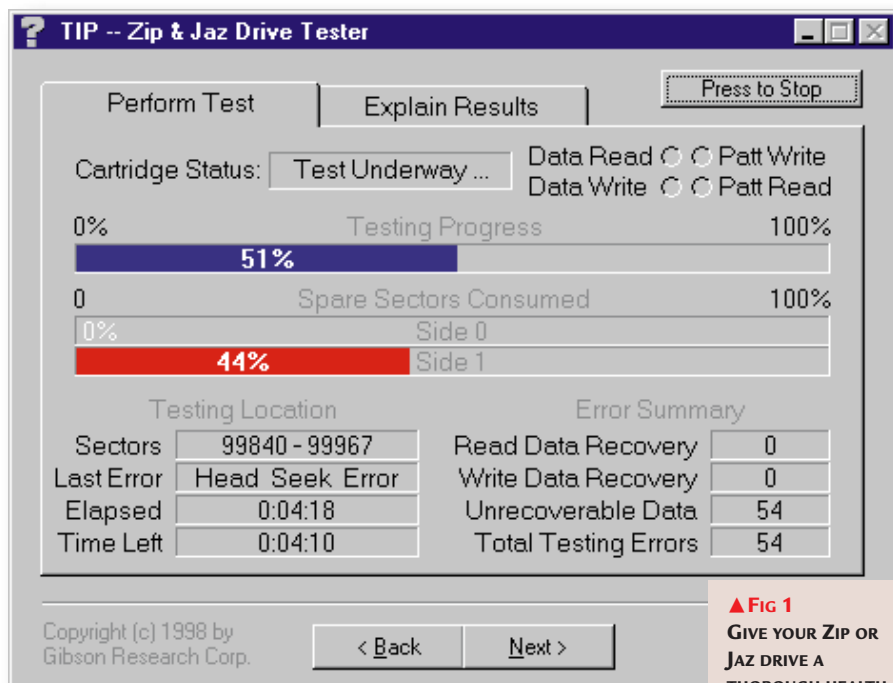
Initially, Iomega handled this very badly, refusing to acknowledge or accept any responsibility for the problem. This policy of denial actually increased user hostility towards the company, prompting some US users to file a class action lawsuit against it. However, Iomega has seen the light and now operates a "no quibble" policy on COD drives and disks, and even on out-of-warranty drives.

Then it clicked

The Click of Death happens when Zip or Jaz drives write incorrectly to their removable media. In doing so, it can not only damage the data areas but also the factory-written low-level formatting, the head's positioning servo information, and the proprietary "Z-Tracks" that are used internally to manage and maintain the Zip and Jaz drive's cartridge data. Note that it's not the actual "click" that is the problem. This is just a symptom; it's just the sound of the heads being retracted from the cartridge, then being immediately reinserted. Most removable drives employ this tactic when having trouble reading or writing to a disk (even the humble 1.44Mb floppy does this). This removal and reinsertion is done deliberately. It recalibrates the head positioning mechanism, cleans the heads and discharges any electrostatic charges. It cleans the heads because there's no way, short of dismantling the drive, of manually cleaning the heads, because the drive spin speed is simply too high for ordinary cleaning disks to work. This distinction is important because if you take a faulty cartridge out of a clicking drive and put it into another drive it, too, will have problems reading that disk and so will click like crazy. It doesn't necessarily mean that the second drive is also dud. Reformatting the now faulty disk in a "good" drive

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won't rectify the problem either, as the servo and Z tracks are factory written and cannot be rewritten in an ordinary drive. Typically, the format will start but will bomb out at about the 70 percent complete mark. It is also extremely unlikely that a defective disk will bring down a "good" drive. The only circumstance where this might occur is where a very bad drive actually chews up the outer edge of a disk, which then hits the heads of the good drive. But this is rarer than winning the Lottery.

Wide speculation has occurred as to the causes of the Click of Death syndrome, from bad external power supplies and loose power connectors, to excessive magnetic oxide build-up on the drive's heads, magnetic and radio interference from nearby sources, media damage from excessive wear or mistreatment, and so on. Ultimately it's a hardware fault, which I put down to slack quality control on Iomega's part — they just don't make 'em like they used to. Anecdotal evidence suggests that the problem is most common in recently-made drives; early drives do not seem to be afflicted. It seems that in the rush to cut costs, corners were cut as well. Note that Iomega isn't the only culprit here: SyQuest has also reportedly had serious QC issues with the SparQ drive.

COD remedies

As this is a hardware problem, the only real solution is to replace the faulty drive and disks, which Iomega seems "willing" to do. Can anything be done to prevent it? Not really. All you can do in the first instance is to run the Diagnose option that comes with the Zip Tools utility. A more thorough health check can be had by running TIP.EXE [Fig 1]. Short for Trouble in Paradise, this essential utility for Zip and Jaz drive owners was written by hard-disk guru Steve Gibson (author of the excellent SpinRite), one of the few people to have spent some time definitively analysing the problem. This tiny (60Kb) utility is freeware and will conduct a thorough test on your Zip or Jaz drive to check for early evidence of

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impending doom. Based on SpinRite technology, TIP is a non-destructive data pattern media surface checker that tests every sector on the disk, leaving any data intact. As well as performing the tests, the program contains much information about the problem. The only caveat is that TIP doesn't work on ATAPI/IDE Zip drives. To use it, you simply run the program. It then ejects all Zip and Jaz disks. You then reinsert a disk and click on the "Press to begin" button. A thermometer charts the progress of the test and any errors found are listed. An "Explain Results" tab helps you interpret the results. TIP can be downloaded from http://grc.com.

Although I've never personally come across the Click of Death, that doesn't mean my experience of Iomega kit has been worry-free.

My own problems began innocuously enough. I have to confess, I'm a bit of a fan of Iomega as the company produces innovative products at a good price and its marketing is slick enough to generate in me the "I want" response. By and large, its hardware has not let me down in

any major way. I confess that I have never been particularly impressed with its bundled software which, while appearing slick enough, always gave me some sort of trouble: it would hang big-time during installation or do silly things like failing to link an icon to a program. But I've come to accept these shortcomings. My Iomega hardware has been as good as gold — until recently, that is.

I don't want to brag or anything but I'm blessed with shed-loads of Iomega kit: a pair of 1Gb SCSI Jaz drives, an
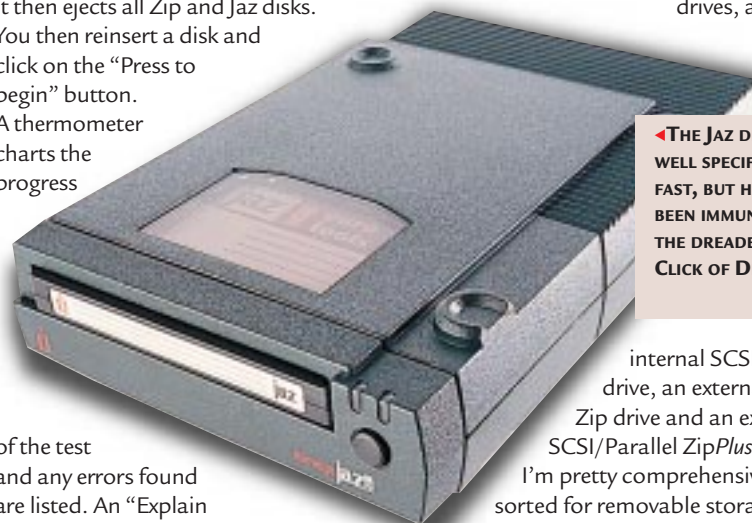
◄ **THE JAZ DRIVE IS WELL SPECIFIED AND FAST, BUT HAS NOT BEEN IMMUNE TO THE DREADED CLICK OF DEATH**

internal SCSI Zip drive, an external SCSI Zip drive and an external SCSI/Parallel Zip*Plus* drive. I'm pretty comprehensively sorted for removable storage, you might think. Anyway, let's start my tale of woe with my home PC. I originally installed the internal SCSI Zip drive here (hung off an Adaptec AHA-2940 SCSI host adapter) and it worked a treat —
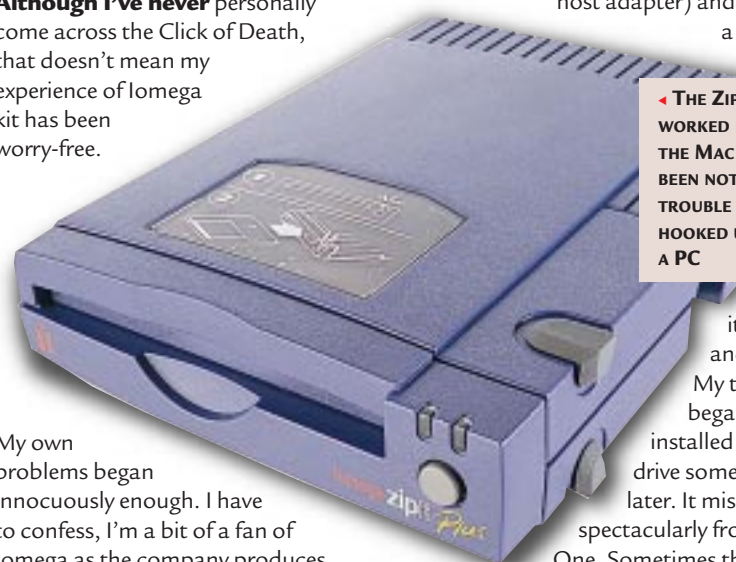
◄ **THE ZIPPLUS HAS WORKED FINE ON THE MAC BUT HAS BEEN NOTHING BUT TROUBLE WHEN HOOKED UP TO A PC**

it's reliable and fast. My troubles began when I installed a SCSI Jaz drive some months later. It misbehaved spectacularly from Day One. Sometimes the SCSI BIOS scan failed to "see" it at boot time. And, when it was detected, the drive would spin up and down continuously. Accessing the drive from

Windows 95 typically caused the system to hang for minutes at a time. Swapping the cartridge made no difference — if you could get it out, that is. Most times, the cartridge refused to eject.

Thinking the drive faulty, I got Iomega to replace it, which, to its credit, it did immediately. Iomega sends you a new (or rather, a "re-manufactured") drive and you return the old one, carriage free, which is a good system. But horror of horrors, the replacement unit behaved in precisely the same way. So, it wasn't the Jaz that was at fault at all. I then kicked in to "logical deduction" mode to solve this mystery. I swapped the SCSI card and cable with an identical one but still the Jaz misbehaved. So it wasn't the host adapter, either. I then ran the Jaz on its own, removing the Zip from the chain (the Zip and the Jaz being the only SCSI devices in this PC). Surprise, surprise, it worked perfectly!
The finger of blame began to point Zip-wards. I fiddled with its rather limited SCSI settings: all you can do is select one

[FIG2]

The SCSI chain

```
Host Adapter      >          Jaz  >
Zip
ID7               ID 2              ID5
                  Terminated

Terminated
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of two SCSI IDs, 5 or 6, and whether or not it is terminated. In this case, the SCSI chain looked like [Fig 2]. Now, while it's possible to set the ID on the Jaz, you can't set termination, via a jumper or DIP switch, on the drive. You have to use the supplied clunky external terminator instead, which plugs into a spare (if you've got one) connector on the 50-way data cable. The way I had it arranged, with the termination being provided by the Zip, was an entirely "legal" configuration. It was an arrangement that should have worked, but didn't. But when I disabled termination on the Zip and relied on the terminating plug instead, everything worked as it should have done.

While I'm happy that the problem has been fixed, I'm somewhat less than happy at the way Iomega's SCSI devices behave. I don't know of any other modern SCSI device that doesn't have a termination option in the form of a switch or jumper, which makes the Jaz a bit of an oddball to say the least. Having to use a terminating plug is *so* 1990! And then there's the Zip, which does have a termination jumper but which doesn't appear to work properly in conjunction with the Jaz. Now, is that just plain wrong, or what?

My Zip woes weren't over, though. I then decided to move the internal Zip to another PC. No problem, I thought, I'll pressgang the ZipPlus drive back in to active service. It had been idling, attached to my seldom-used Mac Performa 5200. To refresh our collective memories, the ZipPlus is a combo version of the external Zip drive, capable of being plugged in to either a SCSI card or parallel port, automatically detecting which type of port it has been connected to. It has two ports at the rear: an AutoDetect port, and a pass-through port for a printer if you are in parallel mode, or for other devices if you are in SCSI mode. While the ZipPlus has been sweetness and light on the Mac, I've had nothing but trouble when hooking it up to a PC. And I know from checking out the newsgroups that the ZipPlus has given grief to many, many users.

Part of the problem is Iomega's insistence on using the obsolete DB-25 connector for its AutoDetect port. It comes with one SCSI cable and this "one size fits all" solution is designed to fit both Mac and PC. Unfortunately, with the sole exception of the SCSI cards sold by Iomega, I don't know of any current PC SCSI host adapters that feature an external DB-25 connector. Most use either the 50-way or 68-way high-density connector so you either have to use the parallel port or buy a special lead. Big mistake. Iomega appears to have bitten off more than it could chew with the AutoDetect feature, which did not work as consistently as it should have done. The company has since issued a set of

I then kicked in to 'logical deduction' mode in order to solve this mystery

rather strict instructions you have to follow if you want the ZipPlus to work properly as a SCSI device. They are:

☛ **You have to use** the ZipPlus only as a standalone device on a DB-25 SCSI or parallel port connection.
☛ **Always use** the ZipPlus with the supplied Iomega blue AutoDetect cable.
☛ **You must never** use any cable converter or gender changer when connecting the drive, either on the connection to the drive or to the computer.
☛ **Don't use** a ZipPlus with PowerBook or PC notebook SCSI connections. Rather limiting, don't you think? All this flatly contradicts the manuals shipped with the drive. If you have an old manual, you can download the updated owner's manual in Acrobat format from the Iomega web site.

Strong stuff

Iomega has also issued this stern warning: "If you use ZipPlus with a cable converter, gender changer, in a multiple-device SCSI chain or without the Iomega blue AutoDetect cable included with every drive, you may not receive the results you expect from the drive and you may compromise the integrity of your data". Strong stuff, eh?

In hindsight, it appears to me that the ZipPlus has been a rather painful exercise for Iomega. Just recently the company dropped the model from its range, citing that it was just too expensive to manufacture, given the recent price cut Iomega made across its range. That's as maybe; but I suspect that the ZipPlus, despite having garnered some great reviews, proved to be more trouble than it was worth and therefore had to go.

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