



**Re: Docket No. 2014-7**

Exemptions to Prohibition Against Circumvention of Technological Measures Protecting Copyrighted Works

Class 19: Jailbreaking Video Game Consoles

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**1. Please address whether it is necessary to circumvent one or more technological protection measures in order to replace or “reflash” an optical drive for a Sony Playstation 3 or Microsoft Xbox 360 video game console and, if so, provide a description of that process.**

It is necessary to circumvent technological protection measures in order to replace the optical drive in a Sony Playstation 3 or a Microsoft Xbox 360.

Unfortunately, due to a TPM, a home repairer cannot simply replace a failed optical drive with a new optical drive—even though such optical drives are widely and cheaply available on the market. The technological protection measures involve the communications between the console’s optical drive and its motherboard. The optical drive is married to the motherboard it was stocked with during manufacturing. In the event that a home-repairer replaces a failed optical drive—with either an Original Equipment Manufacturer (OEM) replacement drive or a non-OEM drive—the device will not read a game in the optical drive. It is also worth noting that optical drives have statistically significant failure rates. SquareTrade conducted a study into failure rates for popular console systems, and found that in incidences not related to the Red Ring of Death or the Yellow Light of Death (problems which were addressed at length in the hearing for this particular exemption), disc read and disc tray errors accounted for about half of the malfunctions per 100 in PS3s, and roughly one-third of the malfunctions per 100 in Xbox 360s and Wii-Us.<sup>1</sup> These malfunctions usually necessitate a drive replacement.

Moreover, on the Xbox 360 system, Microsoft scans consumer consoles upon login to Xbox Live. If the system detects a hardware change, Microsoft may ban that console from Xbox Live and from receiving updates—essentially rendering the console useless for online play.<sup>2</sup> Microsoft bans consoles with replaced optical drives to prevent users from playing pirated copies of specific games—but that does not take into

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<sup>1</sup> [https://www.squaretrade.com/htm/pdf/SquareTrade\\_Xbox360\\_PS3\\_Wii\\_Reliability\\_0809.pdf](https://www.squaretrade.com/htm/pdf/SquareTrade_Xbox360_PS3_Wii_Reliability_0809.pdf)

<sup>2</sup> <http://enforcement.xbox.com/Home/HowTo#sub-topic0-3>

account the experience of users who simply want to replace failing optical drives on their units, instead of upgrading to a new console system. The policy also forces consumers into higher priced “official” repairs.

The problem occurs because the optical drives are cryptographically linked via their serial numbers to the motherboard. Even if a repairer put new firmware on the optical drives, the serial numbers wouldn’t match and the motherboard would reject the drive. Patching the optical drive's firmware similarly breaks the verification hash, causing the motherboard to reject the drive. To replace the drive on many modern consoles, the repairer must re-link the serial number locking a drive to a console. In order to do that without codes from the manufacturer, the repairer has to circumvent one or more copyright protection measures.

To re-link the motherboard and the optical drive on an Xbox 360, a Wii-U, or a PS3 the repairer must follow these steps:

1. Decrypt the console firmware and discover where the per-drive key material is being stored.
2. Find the encryption keys for the per-drive key material.
3. Swap the serial numbers, etc., that link the old drive to the console, and replace it with the new drive's identifying information.
4. Re-encrypt the material, so that the console will view the new data as authentic and not reject it for failing validation tests.

**2. Please state for the record whether, and under what circumstances, Sony and Microsoft offer repair services, respectively, for the Playstation 3 or Xbox 360 video game consoles. Please note whether console repair services are available for consoles that are under warranty, out of warranty, or both.**

Microsoft and Sony both offer official repair services for the Xbox 360 and the Playstation 3, respectively—both in and out of warranty.

Sony will repair the PS3 under warranty, free of charge, for a period of one year after the original purchase date. The warranty does not apply if the console (a) has been used with products that are not compatible with the PS3, (b) has been used for commercial purposes, such as rental, (c) has been modified, tampered with, or the case has been opened, (d) is damaged by misuse, abuse, negligence, accident, wear and tear, or unreasonable use, (e) has serial numbers that have been altered, defaced, or removed, or (f) has a warranty seal that has been removed or altered.<sup>3</sup>

Sony will also repair out-of-warranty PS3s through official repair centers. The price of the repair varies by edition of PS3. The original PS3 can be repaired at a flat rate of \$129, though the unit is actually replaced as opposed to repaired. The 2nd edition PS3 can be repaired at a flat rate of \$99. Every subsequent version of the PS3 can be repaired for \$79.

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<sup>3</sup> <https://www.playstation.com/en-us/support/warranties/ps3/>

Notably, buying a brand new PS3 starts at \$219<sup>4</sup> via Sony's website and \$179 via Amazon's online marketplace,<sup>5</sup> so repairing the unit through official channels can represent well over half the cost of a new unit. A replacement drive, on the other hand, is roughly \$20-\$40.

Microsoft has similar warrantied repair services for the Xbox 360: free repair and services under the warranty period, except when Microsoft deems the products are: (1) damaged by use with products not sold or licensed by Microsoft; (2) used for commercial purposes (including, for example, rental, pay-per-play, etc.); (3) opened, modified, or tampered with or its serial number is altered or removed; (4) damaged by any external cause (including, for example, by being dropped, used with inadequate ventilation, etc., or failure to follow product manual instructions for the Xbox Product); (5) sent to Microsoft without requesting an authorized repair by phone or online; or (6) that were repaired by any third party other than Microsoft or its authorized repair providers.<sup>6</sup>

Out-of-warranty repairs for the Xbox 360 are performed at a flat rate of either \$99.99 or \$119.99, depending on whether the repair is processed via an online portal or over the phone, respectively. On the other hand, replacement optical drives are a fraction of the cost (as are many other commonly replaced components)—and make the repair much more economically feasible. Numerous consumers have also reported quality concerns with Microsoft's repair service, demonstrating the need for market alternatives.<sup>7</sup>

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<sup>4</sup> <https://www.playstation.com/en-us/explore/ps3/systems/>

<sup>5</sup> [http://www.amazon.com/Sony-Computer-Entertainment-Playstation-System-3/dp/B00E369SDM/ref=lp\\_14210711\\_1\\_4?s=videogames&ie=UTF8&qid=1434732585&sr=1-4](http://www.amazon.com/Sony-Computer-Entertainment-Playstation-System-3/dp/B00E369SDM/ref=lp_14210711_1_4?s=videogames&ie=UTF8&qid=1434732585&sr=1-4)

<sup>6</sup> <http://support.xbox.com/en-US/xbox-360/repair/xbox-support-terms-conditions>

<sup>7</sup> <http://www.neo-geo.com/forums/showthread.php?194421-Will-Microsoft-fix-my-Japanese-360-if-it-RROD>