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UNITED STATES COPYRIGHT OFFICE



## Long Comment Regarding a Proposed Exemption Under 17 U.S.C. § 1201

*Please submit a separate comment for each proposed class.*

***NOTE: This form must be used in all three rounds of comments by all commenters not submitting short-form comments directly through regulations.gov, whether the commenter is supporting, opposing, or merely providing pertinent information about a proposed exemption.***

***When commenting on a proposed expansion to an existing exemption, you should focus your comments only on those issues relevant to the proposed expansion.***

**[ ] Check here if multimedia evidence is being provided in connection with this comment**

### ITEM A. COMMENTER INFORMATION

Public Knowledge is a nonprofit organization that is dedicated to preserving the openness of the Internet and the public's access to knowledge, promoting creativity through balanced intellectual property rights, and upholding and protecting the rights of consumers to use innovative technology lawfully. Public Knowledge advocates on behalf of the public interest for a balanced copyright system, particularly with respect to the public's right to repair.

iFixit is an international, open-source, online repair manual for everything. iFixit represents a global community of makers, fixers, refurbishers, tinkerers, and repair professionals. In 2020, iFixit helped over 110 million people repair everything from mobile phones to cars and tractors. Renewal and expansion of these exemptions is necessary to preserve ownership rights and maintain a consumer's right to repair.

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**Privacy Act Advisory Statement:** Required by the Privacy Act of 1974 (P.L. 93-579)

The authority for requesting this information is 17 U.S.C. §§ 1201(a)(1) and 705. Furnishing the requested information is voluntary. The principal use of the requested information is publication on the Copyright Office Web site and use by Copyright Office staff for purposes of the rulemaking proceeding conducted under 17 U.S.C. § 1201(a)(1). NOTE: No other advisory statement will be given in connection with this submission. Please keep this statement and refer to it if we communicate with you regarding this submission.

## ITEM B. PROPOSED CLASS ADDRESSED

Class 12: Computer Programs—Repair.

## ITEM C. OVERVIEW

Video game consoles--like cars, 3D printers, and other software-embedded devices--rely on numerous discrete physical components. When these components break, they must be repaired or replaced in order for the console to work properly. However, console manufacturers such as Sony and Microsoft are increasingly using TPMs to digitally “lock” components to one another in order to prevent independent and DIY repair.

The most common point of failure by far in the recent console generations is the drive for external media storage (including optical discs or game cards). Replacing a damaged optical drive is, by itself, relatively straightforward. However, manufacturers have begun using TPMs to “marry” motherboards to their original optical drives. In short, motherboards will only accept the same physical drive with which the console was originally shipped; the motherboard will reject any replacement drive, even of the same make and model. In some newer units, attaching a new (otherwise compatible) drive will cause the console to “brick” itself and cease functioning entirely.<sup>1</sup> The same general process applies to a motherboard that is damaged and in need of replacing, as the TPMs must be bypassed for the new board to accept the existing optical drive. Depending on the type of damage, repairing an optical drive may require either purely digital *or* physical circumvention.

Since the 2018 hearings, repair services for game consoles have become substantially less available; one of the three major console manufacturers has discontinued repair services for pre-2016 consoles with TPM-locked drives. Owners of affected consoles have no repair option *except* to circumvent the manufacturer’s TPMs. Moreover, evidence and common sense suggests that as consoles “age out” of market popularity, and are discontinued, more such incidents will occur.

As the Copyright Office has noted, “section 1201 was not intended to facilitate manufacturers’ use of TPMs ... to achieve a lock-in effect under which consumers are effectively limited to repair services offered by the manufacturer.”<sup>2</sup> However, the absence of an exemption for game console repair has generated substantial uncertainty for both console owners and independent repair shops, and has curtailed online repair resources’ ability to explain the necessary process to users looking to fix the consoles they own. If these consoles can’t be fixed and pressed into continued service, they also can’t be resold to users who may not be able to afford a brand-new console, donated to charities including hospitals and youth shelters,<sup>3</sup> or preserved for archival use and study. We therefore request that the Copyright Office recommend an exemption for diagnosis, maintenance, and repair of video game consoles.

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<sup>1</sup> Kyle Wiens, *Copyright Law is Bricking Your Game Console. Time To Fix That.*, Wired (Dec 11, 2020), <https://www.wired.com/story/copyright-law-is-bricking-your-game-console-time-to-fix-that/> (“Not only does a broken drive mean you can’t play your favorite discs, but on most Xbox and PlayStation models, a faulty DVD or Blu-ray drive will cause the whole console to stop working, even if the owner mostly plays downloaded, digital games.”)

<sup>2</sup> Copyright Office, *Section 1201 of Title 17: A Report of the Register of Copyrights* 92 (June 2017), <https://www.copyright.gov/policy/1201/section-1201-full-report.pdf> (hereinafter 1201 Report).

<sup>3</sup> Richard Atkin, *Fairbanks Residents Could Donate Their Old Video Consoles To Good Cause*, Webcenter Fairbanks (Nov. 27, 2020) <https://www.webcenterfairbanks.com/2020/11/28/fairbanks-residents-could-donate-their-old-video-game-consoles-to-good-cause/>

## **ITEM D. TECHNOLOGICAL PROTECTION MEASURE(S) AND METHOD(S) OF CIRCUMVENTION**

There are two primary methods of circumvention by which repairers can “divorce” an optical drive from its motherboard in order to replace one or both components. First, an owner can use software to “flash” the motherboard and digitally reset its ability to accept new optical drives. Second, the owner can engage in a lengthy physical process of removing the small circuit board (known as the “daughter board”) attached to the old optical drive, then de-soldering, transferring, re-soldering, and reinstalling it onto the new, functioning drive. However, in addition to being complex, skilled work with a high risk of permanent damage to the equipment, such techniques are useful only when both the motherboard and daughterboard are undamaged and functioning.

## **ITEM E. ASSERTED ADVERSE EFFECTS ON NONINFRINGING USES**

The proposed class would allow users to circumvent TPMs for the purposes of diagnosis, maintenance, and repair of physical components within the console.

The TPM at issue is designed to restrict interoperation between firmware in both the motherboard and optical drive to only pre-paired (and thus “authorized”) drives. Much like access-control firmware in previously granted repair exemptions, the console code is “functional, rather than creative, in nature”<sup>4</sup>; however, for the purposes of this proceeding--and in light of the record’s silence on this point over the previous three rounds--we proceed under the assumption that the code is protected, however thinly, by copyright.

### **Fair Use**

The use of the underlying software is a clear fair use under 17 USC § 107, as well as in light of the Office’s positions with regard to previously granted exemptions.

*First factor: the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes.* Repair of a software-enabled good “may be a favored purpose when directed at preserving the functionality of a device.”<sup>5</sup> Even when the specific method of using the software “is not considered transformative--because [it] will still be used for its intended purpose--that is not in and of itself dispositive.”<sup>6</sup> Moreover, the act of repair is fundamentally noncommercial and personal, designed to allow for continued personal use of a device.

*Second factor: the nature of the copyrighted work.* The software controlling access between a motherboard and optical drive is functional, rather than creative, and crucial to the console’s core functionality.

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<sup>4</sup> Copyright Office, *Section 1201 Rulemaking: Sixth Triennial Proceeding to Determine Exemptions to the Prohibition on Circumventions, Recommendation of the Register of Copyrights* 214 (Oct. 2015), <https://cdn.loc.gov/copyright/1201/2015/registers-recommendation.pdf> (hereinafter 2015 Recommendations).

<sup>5</sup> Copyright Office, *Section 1201 Rulemaking: Seventh Triennial Proceeding to Determine Exemptions to the Prohibition on Circumventions, Recommendation of the Acting Register of Copyrights* 196 (Oct. 2018), [https://cdn.loc.gov/copyright/1201/2018/2018\\_Section\\_1201\\_Acting\\_Registers\\_Recommendation.pdf](https://cdn.loc.gov/copyright/1201/2018/2018_Section_1201_Acting_Registers_Recommendation.pdf) (hereinafter 2018 Recommendations), citing Copyright Office, *Software-Enabled Consumer Products: A Report of the Register of Copyrights* 40 (Dec. 2016), <https://www.copyright.gov/policy/software/software-full-report.pdf>.

<sup>6</sup> 2015 Recommendations at 214.

*Third factor: the amount and substantiality of the portion used in relation to the copyrighted work as a whole.* The amount of code accessed in the course of repairs is proportionally small; however, the Register has previously found that, when used to facilitate repair or interoperability, copying even an entire program "does not necessarily defeat fair use."<sup>7</sup>

*Fourth factor: the effect of the use upon the potential market for or value of the copyrighted work.* The software pairing optical drives and motherboards has no independent market value, and no known market for such software exists.<sup>8</sup>

### **Diminished repair availability**

The circumvention prohibition has created new harms in the past three years, as official repair services have been discontinued for a number of popular consoles with TPM-locked hardware. Moreover, market and development trends indicate that the rate of these harms is likely to increase, not decrease, over the coming years.

The Copyright Office has, since 2012, wrestled repeatedly with the issue of whether to grant an exemption even when licensed repair services exist. For many of these categories--including vehicle telematics, vehicle entertainment systems, home appliances, and smartphones--the Copyright Office has found that the existence of manufacturer repairs is not dispositive to determining whether an exemption is warranted. The Office correctly noted that official repair options "may be less accessible...and/or substantially more costly,"<sup>9</sup> and that "there are times where manufacturer-authorized repair channels are insufficient to address widespread consumer problems in a timely manner or to address the issue at all."<sup>10</sup>

In some cases, manufacturer-provided repair services exist, but are "less accessible" *both* than they were three years ago, and as compared to independent repair services.<sup>11</sup> For example, in the previous three years,<sup>12</sup> Microsoft stopped offering repair services for any console released prior to the 2016 Xbox One S. In 2019, Microsoft officials articulated a policy of no longer repairing consoles not in active production.<sup>13</sup> This decision eliminated repair services for two Microsoft consoles with TPM-locked optical drives--the Xbox 360 (initially released in 2006) and the Xbox One (initially released in 2013). Users must now seek out other options for repair and maintenance, either via independent repair shops or

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<sup>7</sup> *Id.*

<sup>8</sup> The market most likely to be affected--official repair services--is small, entirely subsidiary to the main manufacturers' core business of developing and producing consoles, and almost certain to be unaffected. There is substantial evidence as well that the use of TPMs is not linked to whether or not a manufacturer offers official repair services. Nintendo, which has never TPM locked its components, nevertheless offers the most robust official repair program of any console manufacturer. Moreover, the impact on a producer's business model alone (in this case, ancillary repair services) is not sufficient to defeat the need for an exemption, especially where the core purpose of the TPMs at issue is to restrict downstream repair and maintenance options.

<sup>9</sup> 2018 Recommendations at 213-14 (emphasis added).

<sup>10</sup> *Id.* at 221.

<sup>11</sup> It is also worth noting that, while there are only three sources of "official" console repair, there are approximately potentially thousands of independent shops capable of performing these repairs.

<sup>12</sup> This decision, despite its significant impact, appears to have been made without a public announcement or any real fanfare. However, taking Microsoft's assertions in the 2018 rulemaking as accurate, the policy appears to have arisen sometime in late 2019.

<sup>13</sup> XBF Eladio M (Microsoft Agent), Comment to *Microsoft Xbox One Service Repair*, Microsoft Community (Oct 18, 2019, 7:51 PM), <https://answers.microsoft.com/en-us/xbox/forum/xbagapp/microsoft-xbox-one-service-repair/42137fe9-1f3b-4ea7-ae5c-de86ff93ddeb>.

by DIY methods. Moreover, Microsoft discontinued yet another console with TPM-locked optical drive, the XBox One X (released in 2016), in September of 2020. While Microsoft’s website listed these consoles as repair-eligible as of mid-December 2020, the aforementioned policy indicates that this is a short-term state of affairs.<sup>14</sup>

### **Five statutory factors**

#### 1. *Availability for use of copyrighted works*

As noted previously, the “work” at issue is a relatively miniscule line of code that approves or denies communication between the motherboard and optical drive. Without an exemption, access to and availability of that code is decreased. However, the more salient consideration in a repair exemption is whether or not the availability of related “works”--functioning console code (and thus a functioning console), as well as secondary games and programs enjoyed by console users--definitionally shrinks. A growing number of consoles with TPM-locked parts are no longer covered by official repair policies, at any price; absent an exemption, these consoles will remain broken and unrepairable.

It is also worth noting that, with one notable exception,<sup>15</sup> the decision on whether or not to offer repair services (and at what price) is purely internal to the manufacturer. Microsoft reduced its repair offerings sometime in 2019, without fanfare; it is likely that two recently-discontinued console models will lose repair eligibility in the coming weeks or months. New console models are generally introduced every 1.5-3 years, with older consoles discontinued at approximately the same rate. If anything, the rate of service unavailability absent an exemption is likely to *increase* as consoles obsolesce out of arbitrarily-defined repair eligibility.

2. *Availability for use of works for nonprofit archival, preservation, and educational purposes; and*
3. *Impact on criticism, comment, news reporting, teaching, scholarship, or research*

While the proposed exemption covers repair and not preservation, video game consoles pose unique preservation challenges that strongly support the need for a repair exemption. The development and production cycle for video game consoles is exceptionally fast, with new models being released every 2-3 years, and new “generations” approximately every 7 years. Their market shelf life is short; models have an average production lifespan of just over 6 years, and one manufacturer will often release 3-4 variations on its base console within one generation. A console released in 2010 (such as the PlayStation 3 Slim) is, ten years later, two generations obsolete and four years discontinued.

The lifespan of a gaming console is comparatively ephemeral, with a very narrow window between market introduction and “antique” status. In short, having consoles *available* for long-term preservation, scholarship, and research necessarily requires a robust ability to repair and maintain what amount to ephemeral devices.

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<sup>14</sup> Notably, the other two major console manufacturers--Sony and Nintendo--offer a mixed, though much more robust, bag of repair services. Nintendo does not use TPM locks on its hardware as a general rule, and also offers repair services for any console (stationary or handheld) dating back to the 2004 Nintendo DS. Sony, while offering a much narrower window (only selected systems, with the oldest dating back to 2006), currently offers repair service for all consoles which have TPM locked hardware.

<sup>15</sup> Cal Civ Code § 1793.03.

4. *The effect of circumvention on the market for or value of copyrighted works*

As noted above, there is no independent market for the software in question, and no evidence that a continued prohibition on circumventing will substantially impact the market for (or availability of) manufacturer-provided repair services. If anything, a repair exemption will increase the market for related copyrighted works, such as games for discontinued or older consoles which would otherwise be rendered non-functional.

5. *Such other factors as the Librarian considers appropriate.*

The current uncertainty about console repair produces a number of negative externalities as well. Aside from the aggregate economic impact to consumers that the lack of a clear repair exemption provides, the ecological impacts of the e-waste generated by discarded electronics (including consoles) are massive. 2019 saw a large increase in the amount of e-waste created by the electronics industry, with approximately 80% of e-waste globally ending up in landfills or otherwise improperly recycled.<sup>16</sup> Small IT products like game consoles, laptops, and cell phones accounted for approximately 4.7 million metric tons of e-waste in 2019.<sup>17</sup> Gaming consoles that cannot be repaired often end up in these waste streams where their plastic parts and heavy metals pose a particular e-waste problem.<sup>18</sup> These consoles are distributed globally in regions where manufacturers do not have authorized service networks. Making sure users, not just manufacturers, can repair their devices, including their game consoles, legally is an important part of stemming the flow of toxic e-waste.<sup>19</sup>

## DOCUMENTARY EVIDENCE

None attached.

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<sup>16</sup> Forti V., Baldé C.P., Kuehr R., Bel G., p. 23, *The Global E-waste Monitor 2020: Quantities, flows and the circular economy potential*. United Nations University (UNU)/United Nations Institute for Training and Research (UNITAR) – co-hosted SCYCLE Programme, International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Rotterdam.

<sup>17</sup> *Id.*

<sup>18</sup> Ceclia D’Anastasio, *Next-Gen Gaming is an Environmental Nightmare*, Motherboard (Oct. 15, 2020) (“As specialty electronics, consoles are notoriously difficult to recycle. With parts soldered onto circuit boards, consumers can’t really upgrade them when their specs are out of vogue, like, say, when a new generation launches. So a lot of the time they end up in landfills, where their chemicals and plastics are introduced into the environment—the fate of single-use electronics.”) <https://www.wired.com/story/xbox-playstation-cloud-gaming-environment-nightmare/>; See also Greenpeace, *Leading Game Console Manufacturers Fail Greenpeace’s Green Electronics Test*, Greenpeace news (July 6, 2010) (“The game consoles market is one of the fastest growing in consumer electronics with over 60 million sold and 14 percent growth last year. They not only contain hazardous chemicals but also contribute to the fastest growing type of waste – e-waste.”)

<https://www.greenpeace.org/usa/news/leading-game-console-manufactu/>

<sup>19</sup> Matthew Gault, *The World Economic Forum Tells Davos: Electronics Are ‘the Fastest-Growing Waste Stream in the World*, Motherboard (Jan. 29, 2019) (quoting U.S. PIRG’s Nathan Proctor, ““The obvious conclusion [is] that our relationship with consumer electronics is out of whack,” Proctor said. “Repair is a critical part of fixing our relationship with these products, and is more efficient than recycling. People must be empowered to repair their own stuff. We have way too much waste in the world to only have the companies that manufacture products repair them. This has always been how devices were maintained until quite recently.””)

<https://www.vice.com/en/article/8xynba/world-economic-forum-at-davos-electronics-are-the-fastest-growing-waste-stream-in-the-world>