

# ARE YOUR BITS WORN OUT? THE DMCA, REPLACEMENT PARTS, AND FORCED REPEAT SOFTWARE PURCHASES

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## INTRODUCTION

As with most technological changes, the microprocessor's migration into all types of household devices in the 1980s and 1990s was met with mixed emotions. Setting aside arguments about whether those new capabilities were beneficial, the addition of microprocessors to everyday electronic devices did open a new chapter of flexibility in those devices.<sup>1</sup> While the microprocessor garnered much of the attention, some form of

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1. See TECHNOLOGICAL INNOVATION AND ECONOMIC PERFORMANCE 42 (Benn Steil et al. eds., 2002).

software was necessary to allow each of those microprocessors to implement these new functions.<sup>2</sup> In addition to using software to provide more functionality and improve performance, businesses also learned to use these features to create new strategic business advantages.

While the inclusion of software and microprocessors creates the possibility of more interaction and communication between products, the fact that interface specifications are frequently proprietary means the manufacturer often retains control over which products and components are able to successfully interact with their product. Over time, some original equipment manufacturers (OEMs) began including electronics and software not only in the host products, but in replaceable component parts as well. With electronic compatibility in their arsenal, product manufacturers now had a powerful new tool to protect their interests and profits in the lucrative replacement parts business. As this was occurring in the 1980s and 1990s, traditional defenses to copyright infringement were still available to help maintain a balance. However, the 1998 Digital Millennium Copyright Act (DMCA) added a new level of control for the product manufacturers.<sup>3</sup> It placed significant new restrictions on consumers' ability to access the software in lawfully purchased products and parts. As a result, consumers are often not able to access the copy of the software which resides in products they lawfully purchased. Because they cannot access the software, consumers have no choice but to dispose of the software and purchase a new copy along with the replacement part. While it may be true that manufacturers can include software in each new part at very little incremental cost, the resulting monopoly effect, not the actual incremental cost of the software, is what causes the potential market imbalance and may increase prices for consumers over the long term.<sup>4</sup>

The DMCA appears to sanction this new power to monopolize markets for replacement parts which contain software and force consumers to repeatedly purchase copies of the same software. However, this note explains how existing copyright doctrine provides consumers the right to continue reusing their original copy of the software and outlines the policy reasons why the DMCA was not intended to, and should not, provide protection to manufacturers in these circumstances. Rather than dispose of the software along with each part and be forced to repurchase another copy, "[c]onsumers merely want to use the software, which they have purchased, as it was meant to be used—but without the

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2. See COMPUTERS, SOFTWARE ENGINEERING, AND DIGITAL DEVICES 4-3 (Richard C. Dorf ed., 2006).

3. See 17 U.S.C. § 1201 (2008).

4. KENNETH NICHOLS, INVENTING SOFTWARE: THE RISE OF "COMPUTER-RELATED" PATENTS 141 (1998).

ball and chain.”<sup>5</sup>

The remainder of this note will provide an alternate argument as to why the DMCA, in its current state, should not apply to tangible replacement parts. Part I of this note will further discuss the unique circumstances which arise when the DMCA is applied to replacement parts. Part II of this note will explain the particular DMCA provisions which are applicable to this problem. Part III will summarize the relevant case law. While there are strong policy arguments why the DMCA should not apply in these situations, Part IV of this note will demonstrate that recognized copyright and property doctrines, alone, allow consumers to escape the application of the DMCA for these types of replacement parts. The discussion here supports those who argue for changes in the DMCA to address these problems but demonstrates that only a clarification of the DMCA is required and not an actual change to the protections it provides.

## I. THE DMCA AND REPLACEMENT PARTS

Replacement parts are those parts which fail, wear out, or become unusable through regular use of a durable product and must be replaced in order to continue use of the durable product. While some replacement parts fail on an infrequent or unexpected basis, others are consumed on a predictable, periodic basis by design. In the latter case, the proper functioning of the durable product is based upon the ongoing replacement of these parts. In some cases, the replacement parts even perform a maintenance function on the host product. A consumer who owns the host product must continue purchasing consumable replacement parts that are compatible with the durable product in order to continue using it.<sup>6</sup> The frequently referenced example of razors and razor blades demonstrates that the business opportunity associated with replaceable parts not only has a big impact on the business model but can, in some cases, drive it entirely.<sup>7</sup>

In modern industries, this business model is not only still applicable, it can potentially be used even more opportunistically as product complexity increases. For example, printer manufacturers often sell printers at or below cost and realize most, if not all, of their profits from

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5. Tate Michael Keenan, Note, *A Key to Unlocking Your iPhone: Eliminating Wireless Service Providers' Use of the U.S. Copyright Law to Limit Consumer Choice and Provider Competition*, 43 GA. L. REV. 229, 261 (2008).

6. Marcus Howell, Note, *The Misapplication of the DMCA to the Aftermarket*, 11 B.U. J. SCI. & TECH. L. 128, 131 (2005).

7. Michael J. Chang, Comment, *Digital Copyrightability of Lexmark Toners and Cartridges Under the Digital Millennium Copyright Act*, 17 ALB. L.J. SCI. & TECH. 559, 560 (2007).

the ongoing sales of ink and toner cartridges.<sup>8</sup> In the case of Hewlett Packard, “[a]nalytsts say ink and toner supplies made up more than 80% of fiscal 2004 profit for the computer giant, although they brought in less than a quarter of the company’s \$80 billion in sales.”<sup>9</sup> Lexmark, another large printer manufacturer, utilizes a similar model in which the printers are sold for little or no profit, while printer *supplies* make up a significant portion of the revenue, profit, and business growth.<sup>10</sup> Creating a situation in which consumers focus on the cost of the appliance or hardware and pay little attention to the cost of supplies is a powerful marketing tool and possibly even a competitive necessity.

Because OEMs often derive significant amounts of their profit from replacement parts, third parties also have a strong incentive to develop compatible parts and enter the replacement part aftermarket.<sup>11</sup> As an example, the aftermarket for automotive parts in the United States alone is in excess of 200 billion dollars per year.<sup>12</sup> When making a choice, some consumers initially have the highest confidence in compatibility and reliability in OEM supplied parts. However, aftermarket parts suppliers are driven to create quality products and improvements at an attractive price point in order to compete with OEMs, as well as with other aftermarket competitors. In order to do so, they must carefully conform to the specifications, compatibility, and interfaces designated by the OEM.<sup>13</sup> A strong aftermarket is beneficial to consumers in that it fosters competition, which encourages innovation, provides choices, and drives prices down.<sup>14</sup> Without this aftermarket competition, the OEM’s monopolies on replacement parts may dampen innovation and result in higher prices for consumers over the long term.<sup>15</sup>

While some replacement parts, like auto parts and printer cartridges, are relatively complex and may require significant design and development activities to produce, others, like vacuum cleaner bags and coffee maker filters, are much simpler. Despite this, many of these simple replacement parts are still product and model specific. Even though a

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8. *Id.*

9. Peter Burrows, *Upstarts Spread in the Ink Wars*, BUS. WK., Oct. 28, 2005, [http://www.businessweek.com/technology/content/oct2005/tc20051028\\_769763.htm](http://www.businessweek.com/technology/content/oct2005/tc20051028_769763.htm).

10. *Supplies Sales Drive Lexmark’s Second-Quarter Growth*, RECHARGER MAG., July 26, 2005, <http://www.rechargermag.com/articles/36878/>.

11. Margaret M. Dolan, Comment, *The DMCA and Original Equipment Manufacturers: Let Consumers Decide*, 56 DEPAUL L. REV. 153, 157 (2006).

12. Automotive Aftermarket Industry Association, *About the Aftermarket*, <http://www.aftermarket.org/AbouttheAftermarket.aspx> (last visited Oct. 29, 2009).

13. Howell, *supra* note 6, at 132–33.

14. Chang, *supra* note 7, at 561–62; *see also*, Dolan, *supra* note 11, at 181.

15. Lance C. McCardle, Comment, *Despite Congress’s Good Intentions, the DMCA’s Anti-Circumvention Provisions Produce a Bad Result—A Means to Create Monopolies*, 50 LOY. L. REV. 997, 1021 (2004).

coffee filter is performing a very simple, arguably universal, function, consumer choice is limited to the part that is precisely compatible with the host product. This is true even though its difference from other replacement parts may be functionally negligible. With these simple parts, it is relatively straightforward for an aftermarket manufacturer to analyze the product and design their own version of the replacement part that performs just as well, if not better, than the original. Antitrust laws generally prohibit the OEM from limiting or controlling this type of aftermarket part activity as long as no patent infringement is occurring.<sup>16</sup>

In contrast, unique challenges arise when the replacement part contains electronics and software which communicate with the host product. In addition to the mechanical fit and function, the two must be electrically interoperable.<sup>17</sup> The aftermarket manufacturer now has the much more challenging job of replicating the electrical interface between the two products and emulating the software inside the replacement part which facilitates the communication.<sup>18</sup> For example, the electronics and software in many printers must communicate with corresponding, proprietary software in the replaceable print cartridge before the printer will operate.<sup>19</sup> “The software tells the printer if the correct type of cartridge is installed, if the cartridge is running low on ink, and other useful information the printer may require for its operation.”<sup>20</sup> If the printer does not receive proper communication signals from the cartridge, the printer may simply not operate.<sup>21</sup>

In order to create a replacement cartridge which works with the printer, the aftermarket manufacturer must mimic the original cartridge software and provide the expected responses to fool the printer into believing an OEM cartridge is installed.<sup>22</sup> Unless and until aftermarket providers are able to duplicate these features and provide parts which communicate properly with the host device, the OEM has a monopoly on the parts market. Alternately, the host product may allow a non-communicative aftermarket part to operate in the host device, yet intentionally cause the aftermarket part to function very poorly, thereby creating and reinforcing a monopoly on *competitive* parts.<sup>23</sup>

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16. Eastman Kodak Co. v. Image Technical Servs., 504 U.S. 451, 478 (1992).

17. Howell, *supra* note 6, at 132–33.

18. *Id.* at 133.

19. DIGITAL RIGHTS MANAGEMENT: TECHNOLOGICAL, ECONOMIC, LEGAL AND POLITICAL ASPECTS 625 (Eberhard Becker et al. eds., 2003).

20. Howell, *supra* note 6, at 133.

21. *Id.*

22. *Id.*

23. ECONOMICS OF INFORMATION SECURITY 36–37 (L. Jean Camp & Stephen Lewis eds., 2004) (explaining how Motorola allowed aftermarket batteries to operate in certain model cell phones but intentionally operated the phones in the least efficient mode, causing the batteries to drain as quickly as possible).

While this type of electronic sophistication could only be economically justified on more complex and expensive replacement parts in the past, new technologies and methods have enabled individual electronic circuits which communicate with host devices to be embedded in parts at a cost of less than one cent per unit.<sup>24</sup> This low cost allows electronic interoperability to be implemented in virtually any replacement part used with a host product which already has electronic features. While the average consumer may not envision a great benefit to a disposable coffee filter which communicates electronically with the coffee maker, a manufacturer can argue, whether legitimately or not, that the precision brewing process is adjusted and optimized for the specific type of filter being used.

In order to make interoperable aftermarket products, developers are generally allowed to make use of reverse engineering techniques to analyze the OEM's software as long as the copyrights on the underlying software are not infringed.<sup>25</sup> While it is quite challenging, experienced engineers are surprisingly adept at being able to capture and analyze signals sent between devices and mimic those interfaces.<sup>26</sup> In order to further protect copyrighted software from these efforts, some manufacturers take the extra step of including security features, otherwise known as technological protection measures, to make it much more difficult for aftermarket manufacturers to gain access to the underlying interoperability software.<sup>27</sup> Although circumventing these types of electronic locks was not historically prohibited, the DMCA added a new tier of protection for manufacturers when they use these types of electronic locks.<sup>28</sup> The DMCA, generally, prohibits the circumvention of the technological protection measures which control access to copyrighted material even if no *traditional* copyright violations are committed after gaining access to the software.<sup>29</sup> This extra tier of protection for software embedded in a replacement part allows copyright law to effectively restrict the ability to create a functional replacement part and blocks the aftermarket opportunities associated with those parts.<sup>30</sup>

While the primary intent of the DMCA was to restrict the rampant

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24. Peter Singer, *A New Approach to Low-Cost RFID Tags*, SEMICONDUCTOR INT'L, Feb. 1, 2005, <http://www.semiconductor.net/article/CA499653.html>.

25. Chang, *supra* note 7, at 564.

26. The author has personally observed sophisticated successful reverse engineering activities performed by suppliers of replacement parts which contain electronics and software.

27. Howell, *supra* note 6, at 133.

28. 17 U.S.C. § 1201(a)(1)(A) (2008); 3 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 12A.03[A][1][a] (2009).

29. 17 U.S.C. § 1201(a)(1)(A).

30. AARON SCHWABACH, INTERNET AND THE LAW: TECHNOLOGY, SOCIETY, AND COMPROMISES 93 (2005).

copying and pirating of goods which exist only in digital form,

[t]he potential effect of applying [the DMCA] to the aftermarket is particularly troublesome because it is relatively easy for any manufacturer to add this type of technological access control to existing products, even those outside the realm of the consumer electronics market. For example, automakers could ensure that consumers only purchased licensed replacement tires, windshield wipers, or even the gas used to fill up the car, at monopolistic rates.<sup>31</sup>

There are concerns that the DMCA can be extended to provide protection for just about any product by including a small amount of embedded software and protecting that software with some sort of electronic lock.<sup>32</sup> In addition, this protection could potentially also extend to each of the replacement parts used with these products. On the surface, this application of the DMCA to tangible aftermarket parts seems to be an inappropriately far reaching use of the DMCA's anti-circumvention provision.<sup>33</sup> Due to this potential misuse, many commentators argue the DMCA should be either amended to exclude these types of scenarios or interpreted in a manner to exclude application to these types of goods.<sup>34</sup>

## II. OVERVIEW OF THE APPLICABLE DMCA PROVISIONS

As new technological capabilities emerge which potentially facilitate acts of copying and distributing protected material, copyright law's protections must continually adapt to provide protection as it relates to these new capabilities. At various points in time, new technologies like photocopy machines and digital audio tapes presented unique challenges which copyright struggled to accommodate.<sup>35</sup> With many forms of copyrighted material already existing in digital form, the widespread availability of the internet and increasing availability of high speed

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31. Howell, *supra* note 6, at 134–35.

32. Caryn C. Borg-Breen, Comment, *Garage Door Openers, Printer Toner Cartridges, and The New Age of the Digital Millennium Copyright Act*, 100 NW. U. L. REV. 885, 886 (2006).

33. Keenan, *supra* note 5, at 244.

34. See Jacqueline Lipton, *The Law of Unintended Consequences: The Digital Millennium Copyright Act and Interoperability*, 62 WASH. & LEE L. REV. 487, 545 (2005); James L. Davis, Note, *Is Interoperability Just For Those Who Can Hack It? The Application of the DMCA Interoperability Exceptions in the Consumer Electronics Industry*, 2005 U. ILL. J.L. TECH. & POL'Y 141, 169–70 (2005); Howell, *supra* note 6, at 152–53; Chang, *supra* note 7, at 564; ROBIN JEWELER, CONGRESSIONAL RESEARCH SERVICE, CRS REPORT FOR CONGRESS, ANTICIRCUMVENTION UNDER THE DIGITAL MILLENNIUM COPYRIGHT ACT AND REVERSE ENGINEERING: RECENT LEGAL DEVELOPMENTS CRS-15 (2004), available at [http://ipmall.info/hosted\\_resources/crs/RL32692\\_041210.pdf](http://ipmall.info/hosted_resources/crs/RL32692_041210.pdf).

35. Lee Kovarsky, *A Technological Theory of the Arms Race*, 81 IND. L.J. 917, 956 (2006).

internet connections prompted Congress to enact the DMCA.<sup>36</sup> Three DMCA provisions have a direct impact on the OEM replacement parts market: 1) the anti-circumvention provision, 2) the anti-trafficking provision, and 3) the reverse engineering exception.

#### A. *Anti-circumvention Provision*

Copying which occurs in a widely distributed manner across the internet and exists as thousands or millions of independent acts, frequently through peer to peer networks, naturally triggers a desire to stem the illegal activities by controlling upstream activities which enable the copying. The DMCA does just this by making the act of circumventing the technical protection measures or electronic locks, in itself, a liability-creating activity even if the underlying protected work is not copied or distributed.<sup>37</sup> The most novel aspect of the DMCA, and hence the most discussed and debated, is the anti-circumvention protection. Regardless of whether anything is actually copied, it prohibits “circumvent[ing] a technological measure that effectively controls access to a work protected under this title.”<sup>38</sup>

“The act of circumvention . . . is an independent violation separately actionable under § 1201 and subject to the remedies, civil and criminal, codified in § 1203.”<sup>39</sup> It is precisely this creation of liability, even though no copying or traditional copyright violations have taken place, which prompts some to refer to the DMCA as “paracopyright” law and describe it as a legal mechanism altogether separate from copyright law.<sup>40</sup> “In explaining this right, Congress adopted the analogy of breaking into a locked room to obtain a copy of a book; it is the act of breaking in, rather than the subsequent use of the book, that is prohibited.”<sup>41</sup> While this analogy provides an illustration which is helpful to understanding the distinction between circumvention and copyright violating acts in themselves, it can be misleading because it firmly attaches a negative connotation to the circumventing activities, and glosses over fair use and other exceptions under which these activities may be allowed.<sup>42</sup>

However, in reality, the locked room analogy may be the most accurate. While some allowed uses of otherwise protected material are

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36. See MARSHALL LEAFFER, UNDERSTANDING COPYRIGHT LAW 391 (4th ed. 2005).

37. See 17 U.S.C. § 1201(a) (2008).

38. *Id.* § 1201(a)(1)(A).

39. LEAFFER, *supra* note 36, at 394.

40. NIMMER, *supra* note 28, § 12A.18[B].

41. Daniel C. Higgs, Note, Lexmark International, Inc. v. Static Control Components, Inc. & Chamberlain Group, Inc. v. Skylink Technologies, Inc.: *The DMCA and Durable Goods Aftermarkets*, 19 BERKELEY TECH. L.J. 59, 63 (2004).

42. See 17 U.S.C. § 1201(c)-(k) (2008).



theoretically still intact, the fact that the statute treats the circumvention of the protection measure and the potential copying entirely independently, means that a violation can take place regardless of whether the downstream use may ultimately be protected. The supposed protection for other activities may essentially vanish “particularly when courts hold that the fair use defense cannot be asserted in an anti-circumvention proceeding because fair use only protects certain *uses* of a copyright work, as opposed to *access* of a copyright work without authority.”<sup>43</sup>

A logical conundrum is created by defining circumvention as a *copyright* violation. The problem lies in the fact that the potential defenses exist on the copyright, or the *use*, side of the fence. There is little dispute that circumvention of a technical protection measure which protects a copyrighted work presents a *prima facie* case of infringement.<sup>44</sup> The person who makes no use of the protected work once the circumvention has taken place, or does not even access or interact with the copyright protected work in any manner, is probably still liable for infringement. However, a person who goes a step further and makes use of the work in a manner which is protected by one of the DMCA exceptions *may* escape liability. In other words, the person who makes no use whatsoever is *theoretically* subject to a higher risk of copyright liability than the person who circumvents and uses the work in an excepted manner. Under the DMCA, both the traditional defense of *no* use and fair use no longer exist.<sup>45</sup>

### B. *Antitrafficking Provision*

Further recognizing the distributed nature of copying digital works in this technological era and the ability of the average personal computer user to accomplish the circumvention and copying through easily downloaded software applications, Section 1201(b) also prohibits trafficking in devices or tools which are used to circumvent technical protection measures:

No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that . . . is primarily designed or produced for the purpose of circumventing protection afforded by a technological measure that effectively protects a right of a copyright

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43. Lipton, *supra* note 34, at 494 (emphasis in original).

44. *See* 17 U.S.C. § 1201(a) (2008).

45. *See* Davis, *supra* note 34, at 148.

owner under this title in a work or a portion thereof . . . .<sup>46</sup>

This makes it easier to attack the problem of piracy by also creating liability for the relatively small number of people who provide the technological tools which enable others.

Even though the provider of the tool may never use it to access a protected work, he is still liable under this provision. While this type of contributory liability has long been possible in copyright cases, the DMCA wording goes further and creates liability for the creation and distribution of these types of devices, or software, by removing the need to associate it with specific acts of infringing copying activity.<sup>47</sup> While this has no significant affect on how infringing activities and activities which are plainly contributory are framed, it does significantly impair an individual's ability to pursue previously allowed, excepted activities. As technology expands, specialization means only a very limited number of people have the technical expertise necessary to create the tools necessary to circumvent a particular type of technical protection measure. As a result, the likelihood an individual who wants to circumvent a technical protection measure for an excepted purpose also has the technological knowledge to develop the circumvention means is almost nonexistent. While the traditional contributory liability approach may relieve the tool developers because the ultimate use of the material was allowed, the DMCA approach no longer affords this possibility of relief.<sup>48</sup> The possibility has effectively been eliminated by placing the cart before the horse. "If circumvention itself is illegal then there is no noninfringing use of circumvention technology."<sup>49</sup>

### C. Reverse Engineering Exception

Although there are multiple exceptions to the DMCA allowing, for example, uses by libraries, law enforcement, and others, the most pertinent exception related to this note is the reverse engineering exception. The reverse engineering exception, often also called the interoperability exception, allows a person to circumvent the technical protection measures around a work "for the sole purpose of identifying and analyzing those elements of the program that are necessary to achieve interoperability of an independently created computer

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46. 17 U.S.C. § 1201(b)(1)(A).

47. See Ryan L. Van Den Elzen, Note, *Decrypting the DMCA: Fair Use as a Defense to the Distribution of DeCSS*, 77 NOTRE DAME L. REV. 673, 690 (2002).

48. Davis, *supra* note 34, at 169.

49. Yochai Benkler, *Free as the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain*, 74 N.Y.U. L. REV. 354, 426 (1999).

program . . . .”<sup>50</sup> It allows a person to engage in circumvention when it is necessary to make software programs compatible with other software programs, as long as the interface specifications are not otherwise readily available.<sup>51</sup>

These technical solutions can even be distributed to others as long as it done “solely for the purpose of enabling interoperability of an independently created computer program.”<sup>52</sup> While this provides valuable permission for those engaged in the development of software programs which must interface with other programs, it provides no assistance to the average, non-technical end user who is not attempting to get multiple computer programs to operate together but is simply attempting to access a work to use it in a way that would be protected under traditional copyright law.<sup>53</sup> Despite the fact that other sections of the statute are geared towards the actions of companies, the wording of this exception is such that it focuses specifically on the actions of the end user, and does not expressly provide the same latitude for manufacturers and distributors who are working to provide similar solutions to end users.<sup>54</sup> In this case, using the traditional incentive versus public benefit tradeoff as a means of deciding how far the reverse engineering exception should reach is problematic because the innovation incentive is on both sides of the equation.<sup>55</sup>

### III. VIDEO GAMES, TONER CARTRIDGES AND GARAGE DOOR OPENERS

#### A. *Sega*

*Sega Enterprises v. Accolade, Inc.* was decided before the enactment of the DMCA but touched on some important copyright concepts which can play a role in DMCA analysis.<sup>56</sup> Sega developed, manufactured and sold game cartridges which were compatible with their own video game console.<sup>57</sup> Accolade purchased Sega game cartridges and performed reverse engineering analysis on them in order to discover the interface specifications necessary to produce their own game cartridges which could be played on the Sega game consoles.<sup>58</sup> Accolade developed their

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50. 17 U.S.C. § 1201(f)(1).

51. LEAFFER, *supra* note 36, at 400–01.

52. 17 U.S.C. § 1201(f)(3).

53. Davis, *supra* note 34, at 169.

54. Keenan, *supra* note 5, at 253, 255.

55. Craig Zieminski, *Game Over for Reverse Engineering?: How the DMCA and Contracts Have Affected Innovation*, 13 J. TECH. L. & POL’Y 289, 319–20 (2008).

56. 977 F.2d 1510 (9th Cir. 1992).

57. *Id.* at 1514.

58. *Id.* at 1514–15.

own compatible games based on the information learned from the reverse engineering activities and copied only a very small portion of the Sega code which they felt was necessary to include in their games in order to maintain compatibility with upcoming Sega game platforms.<sup>59</sup>

Although Accolade was ultimately held liable for the portion of the software code which was directly copied, the court found, through a traditional fair use analysis, that the *intermediate* copying of the entire program for disassembly purposes was a protected use because there was no other means of accomplishing this lawful activity.<sup>60</sup> Even though Accolade undertook these activities with the commercial purpose of competing directly with Sega's own cartridges, thereby reducing Sega's sales, the "panel's opinion . . . saw this substitution as swamped by the potential positive effects on the market for Sega's consoles and games."<sup>61</sup> There are two important points to carry forward from *Sega* to analysis under the DMCA. First, *intermediate* copies of software made in the process of accomplishing other legal objectives may not be infringing. Second, even though the software copying may result in a direct reduction in sales of the work owner's product, this does not necessarily defeat a fair use argument because it also considers the benefits of competition and the effect on the market in broader terms.

### B. Lexmark

Lexmark is a major player in the computer printer industry and, like most, brings in much of its income from the sale of replacement toner cartridges for the laser printers it manufactures and sells.<sup>62</sup> Each toner cartridge contains an electronic chip which monitors the level of toner, controls the operation of the toner cartridge, and communicates with the printer. The printer will not operate properly until it receives the proper handshake signal from the chip in the toner cartridge.<sup>63</sup> Static Control Components (SCC), a major supplier of aftermarket parts and components to the printer cartridge remanufacturing industry, reverse engineered one of Lexmark's chips and began offering for sale a clone of that chip.<sup>64</sup> Cartridge remanufacturers could buy those chips and attach them to their refilled or refurbished cartridges in order to make them work in the Lexmark printers.

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59. *Id.* at 1516.

60. LEAFFER, *supra* note 36, at 494.

61. Frank Pasquale, *Toward an Ecology of Intellectual Property: Lessons from Environmental Economics for Valuing Copyright's Commons*, 8 YALE J. L. & TECH. 78, 98 (2006).

62. Howell, *supra* note 6, at 141-42.

63. Tomas Kellner, *Protecting the Family Jewels*, FORBES, Dec. 8, 2003, at 66, available at <http://www.forbes.com/forbes/2003/1208/066.html>.

64. *Id.*

Lexmark sued SCC for copyright infringement and for violation of the DMCA anti-circumvention provisions.<sup>65</sup> The Federal District Court for the Eastern District of Kentucky granted a preliminary injunction against SCC because Lexmark was “likely to prevail on the merits of its copyright infringement and DMCA claims.”<sup>66</sup> SCC “did not qualify for the interoperability exceptions because the computer program was copied from Lexmark and not independently created.”<sup>67</sup> The Sixth Circuit Court of Appeals reversed the injunction in favor of SCC.<sup>68</sup> The court found that the small piece of code that was directly copied was not eligible for copyright protection.<sup>69</sup> In addition, the court found that the copied code was not protected by the DMCA because the code in question could be accessed in the printer through other avenues which had no technical protection measures associated with them.<sup>70</sup> The technical protection measure used by Lexmark protected against the use of the software, but did not protect against access to the software itself, so the DMCA anti-circumvention provision was not applicable.<sup>71</sup>

While the outcome is consistent with the objectives of those arguing for a more restricted application of the DMCA, the holding is likely limited by the unique circumstances of the case. Despite this decision, it is possible that manufacturers may still be able to achieve DMCA protection for code in replacement parts if there is no other way to access the code.<sup>72</sup> In future cases involving more complex code and more careful protection of that code, the outcome may be different. “In fact, the Sixth Circuit’s reasoning on this point could now be read as a recipe for future manufacturers on precisely how to launch a successful DMCA claim in a subsequent interoperable products case.”<sup>73</sup> “The tension between the court’s reasoning and the binding text of the DMCA can only limit the decision’s precedential value—to the detriment of technology users . . . .”<sup>74</sup>

### C. Chamberlain

Chamberlain Group, Inc. is a manufacturer of automatic garage

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65. *Lexmark Int’l, Inc. v. Static Control Components, Inc.*, 253 F. Supp. 2d 943, 947 (E.D. Ky. 2003).

66. *Id.* at 974.

67. *Davis*, *supra* note 34, at 150.

68. *Lexmark Int’l, Inc. v. Static Control Components, Inc.*, 387 F.3d 522, 551 (6th Cir. 2004).

69. *Id.* at 542.

70. *JEWELER*, *supra* note 34, at 8.

71. *Davis*, *supra* note 34, at 151.

72. *JEWELER*, *supra* note 34, at 9.

73. *Lipton*, *supra* note 34, at 506.

74. Timothy Armstrong, *Fair Circumvention*, 74 *BROOK. L. REV.* 1, 25 (2008).

door openers.<sup>75</sup> In order to deter thieves from attempting to electronically capture the unique codes transmitted by the remote control to open the garage door, Chamberlain implemented a “rolling code” system which causes a new code to be generated each time the door is opened.<sup>76</sup> Software and algorithms in the opener allowed it to generate a new code for the remote control each time the door was opened using the remote. Skylink, Inc., a provider of universal garage door opener remote control replacements, began marketing a remote which was compatible with the Chamberlain garage door openers.<sup>77</sup> Rather than duplicating the “rolling code” system, the Skylink remote control worked by exploiting a feature in the Chamberlain openers which allowed the rolling code process to be circumvented.<sup>78</sup>

Chamberlain sued under the anti-trafficking provisions of the DMCA, alleging that Skylink illegally circumvented the technical protection measures associated with the Chamberlain authorization sequence software and enabled the users of the remote to bypass those protections.<sup>79</sup> The district court found that Skylink had not improperly provided access to Chamberlain’s copyrighted software and granted summary judgment in favor of Skylink.<sup>80</sup> In its decision, the court emphasized homeowner expectations and industry practice.<sup>81</sup> Since Chamberlain had not specifically notified customers about any limitations in purchasing a replacement remote, the customers implicitly had authorization to use aftermarket remotes from other providers, and “the customers could pass the authorization along to Skylink by purchasing and programming the replacement remote.”<sup>82</sup>

On appeal, the Federal Circuit affirmed the district court’s holding but on different grounds.<sup>83</sup> Although not expressly limited by the underlying activities in the DMCA, the court focused on whether the “access” provided by the allegedly infringing activities enabled or contributed to activities which would be infringing under traditional copyright law.

We conclude that 17 U.S.C. § 1201 prohibits only forms of access that bear a reasonable relationship to the protections that the

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75. Howell, *supra* note 6, at 143.

76. *Id.*

77. Chamberlain Group, Inc. v. Skylink Techs., Inc., 292 F. Supp. 2d 1023, 1026 (N.D. Ill. 2003).

78. *Id.* at 1032.

79. *Id.* at 1025.

80. *Id.* at 1046.

81. JEWELER, *supra* note 34, at 11.

82. Howell, *supra* note 6, at 144.

83. Chamberlain Group, Inc. v. Skylink Techs., Inc., 381 F.3d 1178, 1204 (Fed. Cir. 2004).

Copyright Act otherwise affords copyright owners. While such a rule of reason may create some uncertainty and consume some judicial resources, it is the only meaningful reading of the statute.<sup>84</sup>

The court concluded there was no violation of the DMCA because the remote control did not copy or modify Chamberlain's software; it only bypassed the security features to get to the software.<sup>85</sup> While the outcome is consistent with the objectives of those arguing for an interpretation which keeps the DMCA within the bounds defined by traditional copyright law, the effect is unclear because the outcome is dependent on the actions of the end user and utilizes "a requirement beyond the text of the statute."<sup>86</sup> Chamberlain "did not shut the door to creative uses of the DMCA."<sup>87</sup> The Chamberlain decision may not reach very far because the express language of the DMCA could easily support the alternate conclusion.<sup>88</sup> Craig Zieminski notes that, "[i]f the DMCA intends to prohibit access control circumvention that does not result in copyright infringement, then the reasoning behind the *Chamberlain* holding is fallacious."<sup>89</sup>

#### IV. APPLICATION TO REPLACEMENT PARTS

##### *A. Congress Did Not Intend This Outcome*

The DMCA was not created because consumers suddenly started ignoring or circumventing copyright laws more than they had in the past, but because the availability of digital copies of copyrighted works and high speed networked digital communications gave the behaviors of those who do infringe an exponentially larger impact on rights owners.<sup>90</sup> Rights owners were justifiably concerned to see that perfect, digital copies of their protected works could be posted on the internet by a small number of people and be instantly and easily available to millions. The primary purpose of the DMCA was to provide additional protections for rights owners by adapting copyright law "to make digital networks safe places to disseminate and exploit copyrighted materials."<sup>91</sup> The new and unique concerns which brought about the legislation are not applicable to tangible replacement parts which cannot be copied and widely distributed through the use of digital networks. They are physical items

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84. *Id.* at 1202–03.

85. Howell, *supra* note 6, at 144.

86. Davis, *supra* note 34, at 152.

87. Keenan, *supra* note 5, at 249.

88. Armstrong, *supra* note 74, at 19.

89. Zieminski, *supra* note 55, at 329.

90. JESSICA LITMAN, DIGITAL COPYRIGHT 111 (2001).

91. S. REP. NO. 105-190, at 2 (1998).

which require traditional manufacturing processes to create each instance and require traditional transportation processes to put each instance of the item in the hands of each end user.

Scholarly research has failed to find information in the legislative history which indicates that Congress intended the DMCA to have this type of effect on aftermarket replacement parts.<sup>92</sup> Professor Lipton says, "Congress did not intend to impact significantly the usual rules and policies relating to commercial competition in tangible goods."<sup>93</sup> These uses of the DMCA not only allow a manufacturer to use a program which is not otherwise available to control trade in the tangible good but create an especially problematic extension of the DMCA when the copyrighted software is incidental to the primary product or replacement part.<sup>94</sup>

Use of the DMCA to indirectly protect replacement part markets in this manner is not only an unintended extension of the DMCA but affords protection for replacement parts containing embedded software which actually conflicts with other intellectual property doctrine. This type of protection for tangible goods gives them intellectual property protection which has the benefits of both patent and copyright law.<sup>95</sup> It gives *useful* devices, which are normally only eligible for patent protection, the benefits of the ease, low cost, and long duration of copyright protection while allowing the manufacturer to monopolize these markets in a manner which is normally only afforded under the much more stringent, shorter duration protections provided by patent rights.<sup>96</sup> This improper use of the DMCA means a functional item which may not have been patentable for various reasons and probably was not eligible for copyright protection, now becomes protected by this new, more powerful variation of copyright law.<sup>97</sup> Zieminski notes that "[a]side from protecting the idea of a product, which falls under the domain of patent law, certain parties are using [DMCA] reverse engineering restrictions to monopolize ancillary markets, a practice that is unacceptable under patent and copyright law."<sup>98</sup> It not only makes copyright law more aggressive, it makes it applicable in situations where copyright was not even previously available.

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92. Brief Amicus Curiae of Law Professors at 5, *Lexmark Int'l, Inc. v. Static Control Components, Inc.*, 253 F. Supp. 2d 943 (E.D. Ky. 2003) (No. 02-571-KSF), available at [http://www.eff.org/files/filenode/Lexmark\\_v\\_Static\\_Control/20030213-LawProfessorsAmicus.pdf](http://www.eff.org/files/filenode/Lexmark_v_Static_Control/20030213-LawProfessorsAmicus.pdf).

93. Lipton, *supra* note 34, at 490.

94. Keenan, *supra* note 5, at 244.

95. See Paul R. Kitch, *DMCA Is OEMs Ticket to "Super-Patenting" the Unpatentable*, 17 INTELL. PROP. & TECH. L.J. 5, 5 (2005).

96. *Id.*; see also ROBERT A. GORMAN, COPYRIGHT LAW 43-44 (2d ed. 2006).

97. See Kitch, *supra* note 95, at 5-6.

98. Zieminski, *supra* note 55, at 326.



When creating the DMCA, Congress recognized the need to allow consumers and manufacturers the flexibility to achieve interoperability between products and the need to leave those rights undisturbed in order to preserve lawful competition and innovation.<sup>99</sup> More specifically, that motivation, preserving competition in the marketplace, drove the creation of the reverse engineering exception.<sup>100</sup> However, if a broad interpretation of the DMCA is allowed to restrict these reverse engineering activities and limit the ability of aftermarket companies to produce compatible parts, there will be a significant, unintended economic effect on competition and the advancement of technology in these industries.<sup>101</sup> The policies and rules which counterbalance the rights afforded to owners under traditional copyright law “seem to have been sidestepped by the DMCA.”<sup>102</sup>

### B. *First Sale Doctrine*

Although the Copyright Act gives the copyright owner the exclusive right to reproduce copyrighted works and distribute those copies, the rights are subject to the many exceptions provided in sections 107 through 122 of the Act.<sup>103</sup> Among these exceptions, section 109 provides an important exception that is commonly referred to as the “first sale doctrine.”<sup>104</sup> The first sale doctrine provides that the owner of a lawfully obtained copy of a work can dispose of that copy as he sees fit.<sup>105</sup> The copyright owner cannot, generally, exert any subsequent control over the further distribution or lawful use of that particular copy of the work.<sup>106</sup> The copyright owner’s rights in the material object are exhausted by the initial sale and, absent other copyright violations, the end user’s use of that instance of the work cannot be controlled.<sup>107</sup>

However, the first sale doctrine does not extinguish all of the copyright owner’s rights, even with respect to that instance of the work. Even under the first sale doctrine, the owner of the copy does not have the right to create derivative works or transform that copy into a

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99. S. REP. NO. 105-190, at 13 (1998).

100. Higgs, *supra* note 41, at 80.

101. Brief Amicus Curiae of Law Professors, *supra* note 92, at 7.

102. Mike Godwin, *The New Legal Panic over Copyright*, in COPY FIGHTS: THE FUTURE OF INTELLECTUAL PROPERTY IN THE INFORMATION AGE 177, 179 (Adam Thierer & Clyde Wayne Crews Jr. eds., 2002); *see also* KEMBREW MCLEOD & LAWRENCE LESSIG, FREEDOM OF EXPRESSION: RESISTANCE AND REPRESSION IN THE AGE OF INTELLECTUAL PROPERTY 179 (2007).

103. 17 U.S.C. §§ 107–122 (2008).

104. GORMAN, *supra* note 96, at 119.

105. LEAFFER, *supra* note 36, at 319.

106. *Id.* at 319–20.

107. *Id.*

derivative work.<sup>108</sup>

In the case of replacement parts, the end user is not attempting to make a derivative work. The end user would be attempting to use an exact copy of the copyrighted software to perform exactly the same function but within a different physical part.

Software copyright owners sometimes avoid the first sale doctrine by structuring the initial transaction as a license rather than a sale, thereby retaining the ownership rights that would normally trigger the protections of the first sale doctrine.<sup>109</sup> This approach is commonly used for purely digital works which are more easily copied and distributed on a large scale. Apple's iTunes is one of the most well known examples of this approach in which the consumer is not actually purchasing a copy of the work, but is only obtaining a license to access and make certain uses of it.<sup>110</sup> Under this license, there is no way to resell the music *purchased* from iTunes as one could if a traditional CD of the music had been purchased.<sup>111</sup> While various parties debate whether this is fair to the consumer, the beneficial protections of the license approach for the rights owner for purely digital goods are understandable. However, this approach is very difficult to carry over to tangible goods. The absence of a license agreement, the physical nature of the goods, and the often ancillary nature of the embedded software support a strong presumption that the traditional rights of the first sale doctrine continue to be applicable to replacement parts.<sup>112</sup>

Furthermore, even though the license model used by Apple and others is more restrictive than an outright purchase of a work, it does not require a user to repurchase the work if the device on which it is installed is destroyed or replaced.<sup>113</sup> A consumer whose mp3 player is no longer usable is generally able to reload the music onto a replacement device at no additional cost.<sup>114</sup> Similarly, a consumer who purchases a replacement part which contains software has already purchased a copy of the software and should not be required to repurchase it each time the tangible, physical item it is being used with must be replaced. This point is especially instructive when considering the fact that, in most

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108. H. WARD CLASSEN, A PRACTICAL GUIDE TO SOFTWARE LICENSING FOR LICENSEES AND LICENSORS: MODEL FORMS AND ANNOTATIONS 17 (2d ed. 2007).

109. See Lipton, *supra* note 34, at 538.

110. Apple, Inc., iTunes Terms of Service, <http://www.apple.com/legal/itunes/us/service.html> (last visited Oct. 29, 2009).

111. Eric Matthew Hinkes, *Access Controls in the Digital Era and the Fair Use/First Sale Doctrines*, 23 SANTA CLARA COMPUTER & HIGH TECH. L.J. 685, 690 (2007).

112. *Id.*

113. See e.g., Apple, Inc., *supra* note 110; see also RealNetworks, Inc., Rhapsody End User License Agreement, <http://rhapreg.real.com/rhapsody/freeform?freeformname=RhapC%20EULA> (last visited Oct. 29, 2009).

114. See Apple, Inc., *supra* note 110; RealNetworks, Inc., *supra* note 113.

circumstances, the ownership rights of the copy of the software embedded in the replacement part are more extensive than those provided by a license agreement.<sup>115</sup>

Although not expressly mentioned in the decision, the reasoning behind the *Chamberlain* court's decision is consistent with the first sale doctrine and supports this type of use by consumers.<sup>116</sup> As with the reprogramming of a replacement remote control for a garage door opener, it is the end consumer who is exchanging one part for another. The customer has already purchased a lawful copy of the software and is simply bypassing security features associated with that software in order to continue exercising their first sale rights.

Absent any license agreement restrictions, an end user's continued use of their lawfully purchased software in this manner would generally not present an infringement problem. According to *Chamberlain*, a use which would be allowed under traditional copyright law would not be prohibited under the DMCA.<sup>117</sup> "The DMCA does not create a new property right for copyright owners."<sup>118</sup> For these types of applications, the focus is on the end user and whether the end user has done something which constitutes an infringing activity.<sup>119</sup> Therefore, the conclusion, even under the DMCA, must hinge upon whether the end user was within the bounds of his first sale rights.

The first sale right includes not only the right to resell the item, along with any embedded software, but also the right to destroy the work.<sup>120</sup> Although some may extend the doctrine of moral rights to protect against disposal of a work, the United States copyright system takes a utilitarian approach to copyright, as opposed to a moral approach, and generally does not prohibit destruction of protected works.<sup>121</sup> This hesitance to extend application of moral rights to disposal is particularly justified for digital works where many identical copies exist and destruction of a copy does not completely remove the creative expression from the public as would destruction of an original painting.

Section 109(b)(1)(A) provides some special restrictions on application of the first sale doctrine to computer programs and software.<sup>122</sup> However, section 109(b)(1)(B)(i) explains that these

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115. See *supra* note 114.

116. See *Chamberlain Group, Inc. v. Skylink Technologies, Inc.*, 381 F.3d 1178, 1204 (Fed. Cir. 2004).

117. *Id.* at 1202; Howell, *supra* note 6, at 144.

118. *Chamberlain*, 381 F.3d at 1204.

119. See Davis, *supra* note 34, at 152.

120. Hinkes, *supra* note 111, at 689.

121. Shubha Ghosh, *Reflections on the Traditional Knowledge Debate*, 11 CARDOZO J. INT'L & COMP. L. 497, 509-10 (2003).

122. 17 U.S.C. § 109(b)(1)(A) (2008).

restrictions do not apply to “a computer program which is embodied in a machine or product and which cannot be copied during the ordinary operation or use of the machine or product.”<sup>123</sup> Since replacement parts of the type being discussed here do not inherently provide the ability to copy the embedded software in most cases, the section 109(b)(1)(A) restrictions would not apply and all of the usual first sale rights would still be available.

### C. Separability

Even though embedded software exists in nearly all electronic consumer products on the market today, some argue there is not an expectation of continued use of the software when the durable product is no longer usable for some other reason.<sup>124</sup> In other words, today’s consumer does not necessarily expect to be able to continue to use the software embedded in an alarm clock when the alarm clock is otherwise no longer usable. The software and the physical product are often viewed as inseparable because they are marketed in that manner and have been historically treated as one item. But, software and hardware may be increasingly viewed as separate items as software becomes a more important part of products, exists as a more distinguishable element, and platform standardization occurs.<sup>125</sup>

When a consumer is replacing a product, the question of separability usually does not rise to the surface because the consumer usually purchases a different model of the product which uses different software, or purchases a product from a different manufacturer altogether. However, the case of replacement parts is different in a significant way. If the OEM is successful in creating a monopoly in the replacement parts, the consumer has no other choice than to purchase the replacement part from the OEM. The separability question becomes more important because the consumer is essentially forced to *repurchase* a copy of the same software that was just discarded.<sup>126</sup> From the outset, the OEM successfully requires the consumer to continue repurchasing the same software throughout the life of the durable product through design of the product, design of the part, and the business model.

### D. Fair Use

The fair use doctrine allows certain “reasonable” uses of copyrighted

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123. *Id.* § 109(b)(1)(B)(i).

124. Seldon J. Childers, *Don't Stop the Music: No Strict Products Liability for Embedded Software*, 19 U. FLA. J.L. & PUB. POL'Y 125, 127 (2008).

125. Samuel N. Weinstein, *Bundles of Trouble: The Possibilities for a New Separate-Product Test in Technology Tying Cases*, 90 CAL. L. REV. 903, 943–50 (2002).

126. Dolan, *supra* note 11, at 181–82.

material without the consent of the copyright owner.<sup>127</sup> The ideas underlying the fair use doctrine have existed in common law since the mid-nineteenth century and were codified in the 1976 Copyright Act.<sup>128</sup> Fair use is an equitable doctrine which courts may utilize when a literal, strict enforcement of the copyright owner's rights is against the public interest and is not necessary to protect the owner from significant harm.<sup>129</sup> Although the statute does provide some examples of situations where the fair use defense is applicable, there is no intent to provide an exhaustive list of all the possible situations.<sup>130</sup> Fair use has been allowed to develop and expand "through the case law and its adaption to changing times and technology."<sup>131</sup> "[C]ourts must be free to adapt the doctrine to particular situations on a case-by-case basis."<sup>132</sup> "[T]he endless variety of situations and combinations of circumstances that can rise in particular cases precludes the formulation of exact rules . . . especially during a period of rapid technological change."<sup>133</sup> Therefore, any purely historical explanation as to why fair use does not apply to a particular situation is questionable, especially where new technologies are involved.

The DMCA expressly states that it is not to affect any pre-existing fair use rights.<sup>134</sup> Despite the literal text, critics argue the DMCA has been applied in ways that do affect fair use rights.<sup>135</sup> In the case of tangible goods and replacement parts, it is fundamental to remember that, in most cases, the consumer has purchased, not licensed, the item and has ownership rights associated with the physical item and the embedded software. While it is true that manufacturers of replacement parts, in the future, may choose to provide the software embedded in replacement parts only under a license agreement, thereby further limiting the rights of consumers, this is not the predominant situation for replacement parts today.

A broad reading of the DMCA anti-circumvention provisions might limit the ability to obtain help or tools from others in order to access this underlying software, but even the broadest reading would seemingly still afford access rights to "those few who [own the work and]

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127. *Rosemont Enters., Inc. v. Random House, Inc.*, 366 F.2d 303, 306 (2d Cir. 1966).

128. GORMAN, *supra* note 96, at 139–41.

129. *Id.* at 140.

130. LEAFFER, *supra* note 36, at 471.

131. *Id.*

132. H.R. Rep. No. 94-1476, at 66 (1976).

133. *Id.*

134. 17 U.S.C. § 1201(c)(1) (2008).

135. See e.g., David Nimmer, *A Riff on Fair Use in the Digital Millennium Copyright Act*, 148 U. PA. L. REV. 673, 714, 741 (2000); Hinkes, *supra* note 111, at 699; Haimo Schack, *Anti-Circumvention Measures and Restrictions in Licensing Contracts as Instruments for Preventing Competition and Fair Use*, U. ILL. J.L. TECH. & POL'Y 321, 324, 331 (2002).

personally possess sufficient expertise to counteract whatever technological measures are placed in their path.”<sup>136</sup> The *Chamberlain* court recognized that the DMCA cannot prevent all types of access to embedded software because “[a] provision that prohibited access without regard to the rest of the Copyright Act would clearly affect rights and limitations, if not remedies and defenses.”<sup>137</sup> However, some commentators feel broad interpretation and application of the DMCA results in consumer liability for circumvention of technical protection measures even if the consumer was performing acts which would otherwise be protected fair use privileges.<sup>138</sup>

There are at least two reasons an absolute restriction on a product owner’s right to access the software within the product he has purchased is inconsistent with fair use and cannot be supported. First, fair use rights exist for individuals who have not even purchased a work or otherwise compensated the work owner.<sup>139</sup> In the case of replacement parts, the user has purchased both the physical product, the original instance of the replacement part, and the embedded software. The financial benefit the copyright owner receives as a result of the purchase satisfies the primary objectives of copyright: encouragement of individual effort and availability of the work to the public through the guarantee of economic gain.<sup>140</sup> Because the purchasing consumer has directly contributed to the satisfaction of this objective, it would be illogical to conclude that the purchaser has rights that reach no further than those available under fair use to an individual who purchased nothing. In other words, a nonpurchaser who uses the work in a noncommercial manner and does not affect the owner’s market for the work, has a reasonable argument that his activities are protected by fair use, even in absence of permission from the owner. If a person who actually purchases a copy is not afforded broader individual uses than the nonpurchaser, the copyright system is not successfully providing financial incentives for the work owners.

The second reason fair use must allow the product owner to access the software within the product is that the DMCA would be inherently contradictory if it did not leave those rights untouched, as expressly provided in the text.<sup>141</sup> If this is not the case, manufacturers of electronic products can proactively eliminate fair use opportunities associated with copyrighted works within the product for both purchasers, and non-purchasers, simply by adding a technical protection measure to the

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136. Nimmer, *supra* note 135, at 740.

137. *Chamberlain Group, Inc. v. Skylink Technologies, Inc.*, 381 F.3d 1178, 1200 (Fed. Cir. 2004).

138. LEAFFER, *supra* note 36, at 509–10.

139. *Id.* at 470.

140. *Id.* at 22.

141. *See* 17 U.S.C. § 1201(c)(1).

product.<sup>142</sup> The Copyright Act is not intended to be a complete bar to competition and the specific market situation must be taken into account when deciding how it is applied, even under a fair use argument. In *Sega*, even though the two parties were in direct commercial competition, the copying of the software in order to develop compatible products was protected fair use.<sup>143</sup> The fact that there may be some reduction of sales in the OEM's products is not dispositive and may even be counterbalanced by the fact that the replacement parts which were developed using copied software ultimately have a positive effect on the market for the OEM's host products.<sup>144</sup>

Even if courts are unwilling to extend traditional fair use doctrine to these unique situations created by the DMCA, the alternate argument says that a parallel doctrine of "fair circumvention" should evolve to address unanticipated situations just as fair use did for traditional copyright law.<sup>145</sup> This could be accomplished by borrowing some guidance from fair use while not being confined to the specific boundaries or interpretations of fair use.<sup>146</sup> While some may be resistant to creating exceptions to statutes which seem to clearly address a situation, the DMCA may simply not have a single clear meaning within its four corners to apply to these situations.<sup>147</sup> If the judicial development of fair use is viewed as a reasonable approach to the challenges raised by traditional copyright law, the same approach for the DMCA would seemingly be sensible.<sup>148</sup>

Unchecked, the DMCA will swallow traditional fair use everywhere an electronic lock is possible. The incentive associated with disallowing fair use through a broad reading of the DMCA combined with advancements in miniaturization of electronics,<sup>149</sup> will leave very few replacement parts without this type of monopolistic control.<sup>150</sup> James Davis says:

[A]ttempting to monopolize an entire market of aftermarket electronic products based on the reward of a monopoly over copyrightable software in the primary product "runs counter to the statutory purpose of promoting creative expression and cannot constitute a strong equitable basis for resisting the invocation of the

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142. Borg-Breen, *supra* note 32, at 894.

143. *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1527–28 (9th Cir. 1992).

144. *See* Pasquale, *supra* note 61, at 112.

145. Armstrong, *supra* note 74, at 4–5.

146. *Id.* at 47–48.

147. *Id.* at 44.

148. *Id.* at 50.

149. Singer, *supra* note 24.

150. Chang, *supra* note 7, at 568.

fair use doctrine.”<sup>151</sup>

The DMCA was not intended to change these existing balances between traditional copyright law and free market dynamics.

### E. *Misuse*

Even those who prefer strict textual interpretation and a minimum of exceptions cannot ignore the fact that intellectual property misuse is a recognized doctrine that can serve as a successful defense for what might otherwise be deemed infringement.<sup>152</sup> The patent misuse doctrine developed in response to patent owners who were using their market power to restrain competition and control markets in related products through leveraged use of their patents.<sup>153</sup> While not as thoroughly developed, the copyright misuse doctrine is a recognized defense.<sup>154</sup> Although there are some elements in common with antitrust law, a successful defense does not require one to show competitive injury or individual harm.<sup>155</sup> Therefore, even though it is a relatively new concept and does not have a fully developed set of case law, there is support for use of the copyright misuse doctrine to counterbalance the expansive and unique rights provided by the DMCA.<sup>156</sup>

In 2006, the Librarian of Congress granted a DMCA circumvention exception allowing users to circumvent the protections associated with embedded software in cellular phones in order to enable the phones to operate on other provider's networks.<sup>157</sup> In reaching the decision, the Librarian recognized that the restriction of access to the software by the carriers and phone manufacturers was “a business decision that has nothing whatsoever to do with the interests protected by copyright.”<sup>158</sup> While a full discussion of embedded software copyright misuse in replacement parts presents a slightly different question and is beyond the scope of this note, it must be recognized that there are formal processes through which DMCA rights can be adjusted in order to respond to activities which look like copyright misuse, and provide proper protections for end users without venturing into a rewriting or

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151. Davis, *supra* note 34, at 155 (quoting *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1523–24 (9th Cir. 1992)).

152. See *Morton Salt Co. v. G.S. Suppiger Co.*, 314 U.S. 488 (1942).

153. LEAFFER, *supra* note 36, at 518.

154. *Lasercomb Am., Inc. v. Reynolds*, 911 F.2d 970 (4th Cir. 1990).

155. LEAFFER, *supra* note 36, at 518.

156. Dan L. Burk, *Anticircumvention Misuse*, 50 UCLA L. REV. 1095, 1138–40 (2003).

157. Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 71 Fed. Reg. 68,472, 68,476 (Nov. 27, 2006) (to be codified as amended at 37 C.F.R. § 201.40).

158. *Id.*



reinterpretation of the DMCA.<sup>159</sup>

*F. Practical Aspects of Computer Programs*

Although not usually categorized as a fair use defense, section 117 of the Copyright Act provides a further limitation on the rights of copyright owners for computer programs.<sup>160</sup> It recognizes the unique characteristics of computer software and the unique circumstances that arise in conjunction with software use.<sup>161</sup> The section 117 limitations “acknowledge both that utilization of software may sometimes require reproduction, and that software is evanescent.”<sup>162</sup> Under this section, the lawful owner of a copy of software is allowed to make backup copies of the software under certain circumstances. The consumer is allowed “to make or authorize the making of” a copy of the program if it is an “essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner.”<sup>163</sup> This provision acknowledges that software has very different characteristics than physical, tangible devices and provides the flexibility to make copies of the software in order to insure that the user is able to accommodate the various situations that might arise and keep the hardware and the software working together.

Most commonly, the referred-to *machine* would be a computer and the *copy* would be a copy made in the process of loading that program into the computer’s memory.<sup>164</sup> In the case of a replacement part, the *machine* would be a host product like a printer, automobile, or some other tangible device that interfaces with the replacement part by making use of the software that resides in it.

Envision a scenario in which an automobile air filter contains software which communicates with the engine through electronic means in order to insure proper operation and guarantee that the engine will not run if the filter is too old, dirty, or missing. Eventually, the air cleaner will need to be replaced and the owner will need to replace it with one that has the electronics and software to interface to the car properly. If he was able to buy a replacement filter that did not include the software and was able to *reuse* his copy of the software from the original filter, making this copy of the software would be “an essential step in the utilization of

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159. Keenan, *supra* note 5, at 241–42, 261.

160. See 17 U.S.C. § 117 (2008).

161. LEAFFER, *supra* note 36, at 315.

162. Joseph P. Liu, *Owning Digital Copies: Copyright Law and the Incidents of Copy Ownership*, 42 WM. & MARY L. REV. 1245, 1295 (2001).

163. 17 U.S.C. § 117(a)(1).

164. GORMAN, *supra* note 96, at 165.

the computer program in conjunction with a machine[.]”<sup>165</sup> Some may argue there is no economical difference between selling the air filter with or without the software because the incremental cost of the manufacturer programming the software into the part is negligible. While this may be true, the importance of this flexibility lies not in a per item financial analysis, but in whether the consumer has the right to continue to use his existing software and the market monopolies which are made or broken as a result of the answer.

Although this approach may seem awkward because current retail practices do not normally function this way, it is fundamentally no different than the right of a user who buys a computer which is bundled with a copy of Microsoft Windows to retain his copy of that software and install it on a new computer when the old computer is discarded. Why should this outcome be changed by more directly attaching the software to a physical item? Although this interpretation and use of backup copies under section 117 does not appear to have been tested, the fact that both the machine and the software in this replacement part scenario were manufactured and sold by the same provider would seem to lean in favor of an end user making a copy of the software in order to be able to continue using those pieces together.

In addition, section 117 provides that backup copies may be transferred to another person along with the original copy of the software.<sup>166</sup> Combining this right with the separability concept discussed previously, the owner of the replacement part should be able to make a copy of the embedded software in the replacement part, assuming he is technologically able to, and transfer that copy, along with the expired part which contains the original software, to a third party. At that point, the third party has lawfully obtained the expired part which contains the original copy of the software as well as the backup copy of the software.<sup>167</sup> Alternatively, the original owner could transfer the expired part to the third party and the third party, now being the owner, could make the backup copy. This would be allowed as long as it was being done as an essential step in the utilization of the embedded software with a machine.<sup>168</sup> If the expired part is unusable and must be discarded, making a copy of that software will be essential to continue using the software *with a machine*.

The alternative hypothetical situations above describe how either the original owner of the replacement part or a third party receiving ownership of the replacement part, could lawfully make a copy of the

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165. 17 U.S.C. § 117(a)(1).

166. *Id.* § 117(b).

167. *See id.*

168. *Id.* § 117(a)(1).

software under section 117. The latter would be necessary if the original owner did not have the technical ability to make the copy himself. While theoretically sound, transfer of ownership of the expired part to the manufacturer is not a terribly practical solution.

A better approach is for the original owner, retaining ownership of the part, to engage the manufacturer, as an agent, to help make the backup copy and exercise the rights associated with the use of that backup copy.<sup>169</sup> “If the alleged infringing activity would be excused if done personally by the principal then the principal’s agent, or even an authorized independent contractor, must be able to assert the principal’s defenses under the Copyright Act.”<sup>170</sup> In other words, the owner of the software can rely on a third party to execute the copying activity on his behalf.<sup>171</sup> This approach was supported in *Sega* where the intermediate copies of software, made in the process of accomplishing other lawful objectives, were found to not infringe the original work.<sup>172</sup> Of course, the third party would have no rights in the software and no right to keep a copy for himself.

The potential solutions described above resolve the situation in the absence of the DMCA. An additional layer of complication arises when the manufacturer of the part uses a technical protection measure to limit access to the software embedded in the replacement part. As described previously, the interoperability exceptions to the DMCA allow the owner of an instance of the work to reverse engineer and circumvent the technological protection measures in order to achieve interoperability.<sup>173</sup> However, this exception is limited to achieving interoperability with “an independently created computer program.”<sup>174</sup> Whether the host product software qualifies as an independently created computer program, whether the requisite interoperability can be satisfied by the replacement part itself, and the exact scope of the interoperability exception remain unclear under the current case law.<sup>175</sup>

If a narrow interpretation of the DMCA ultimately controls, the owner of the part will likely still have the right to access the work under the fair use arguments made previously.<sup>176</sup> However, the agent approach to making backup copies under section 117 would be difficult to fit within the interoperability exception rights provided to the owner of the

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169. Llewellyn Joseph Gibbons, *Entrepreneurial Copyright Fair Use: Let the Independent Contractor Stand in the Shoes of the User*, 57 ARK. L. REV. 539, 595 (2004).

170. *Id.*

171. NIMMER, *supra* note 28, § 8.08[B][1][d].

172. *See supra* Part III(A).

173. 17 U.S.C. § 1201(f)(1) (2008); Davis, *supra* note 34, at 149.

174. 17 U.S.C. § 1201(f)(1).

175. Howell, *supra* note 6, at 141.

176. *See* LITMAN, *supra* note 90, at 132.

software under the DMCA. Although an agent can be given authority to act on behalf of the owner, he would still not be the *owner* of the property (the software) and it is unclear whether agency principles would allow him to do so under the DMCA.<sup>177</sup>

The *Lexmark* decision appears to deal with the question of duplicated software for replacement parts directly.<sup>178</sup> The product in question provided end users a copy of software they already owned in order to enable a replacement part to operate correctly with the host device when disposal of the original part containing the original copy of the software was necessary.<sup>179</sup> Furthermore, the circumvention of the protection measures and copying of the software was performed by a third party, SCC, and not the end user.<sup>180</sup> Unfortunately, due to the unique facts of the case, it cannot be relied upon as an answer to the question it would appear to squarely address.<sup>181</sup> In a situation where the software is eligible for copyright protection and has been properly protected in all instances, the *Lexmark* decision will provide little precedent and a similar case could easily be decided in favor of the manufacturer.<sup>182</sup>

### G. *No Additional Copies*

The preceding discussions explain how the consumer could lawfully make a copy of the software embedded in an expired part, transfer it to the new part, and continue using the software lawfully. In this regime, an aftermarket manufacturer could market replacement parts without software and still theoretically be able to compete. This eliminates the problem of the aftermarket part provider being liable for copying or supplying copies of the software and encountering problems with copyright law or the DMCA. The rights of the copyright owner are fully respected in that the number of copies of the software being used is no greater than the number for which he has already been compensated.

While this approach provides a solution to the problem of protected software in replacement parts from a theoretical standpoint, it does not

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177. See J. DENNIS HYNES & MARK LOEWENSTEIN, AGENCY, PARTNERSHIP AND THE LLC: THE LAW OF UNINCORPORATED BUSINESS ENTERPRISES 38 (7th ed. 2007).

178. *Lexmark Int'l, Inc. v. Static Control Components, Inc.*, 387 F.3d 522, 529 (6th Cir. 2004).

179. See *Lexmark Int'l, Inc. v. Static Control Components, Inc.*, 253 F. Supp. 2d 943, 955 (E.D. Ky. 2003).

180. *Id.*

181. *Lexmark*, 387 F.3d at 540–41, 547–48 (concluding that the Toner Loading Program at issue in the case was not eligible for copyright protection and would not have been covered by the DMCA because the software was accessible in the printer without the protection mechanisms).

182. See Lipton, *supra* note 34, at 506.

present an efficient solution when the practical aspects of volume manufacturing and retail supply channels are considered.<sup>183</sup> Under this scenario, aftermarket part manufacturers would not be able to program a replacement part with the appropriate software as part of a volume manufacturing process. Either the manufacturer would need to wait to receive the original copy of the embedded software from the end user before a copy could be programmed into the new part or the end user would have to do it himself.<sup>184</sup> This would be necessary to insure that the new copy only existed as a legitimate replacement of an original copy in order to maintain a one-for-one relationship. While this solves the problem academically, it does not allow a manufacturer to fill supply channels and retail stores with aftermarket parts that already have the proper software loaded and are ready to be used. Supply chains would be filled with thousands of new copies without being able to link each of those copies with a specifically identified original copy which would be destroyed.

While the *Sega* decision seems to allow these types of temporary copies, is there also a contractual solution that can bridge the gap? If the part manufacturer could insure that the original copy was being destroyed, it could get much closer to insuring that the work owner's rights were being properly protected. This could be accomplished by requiring the return of the original part in order to be eligible for a purchase. The manufacturer would then guarantee the destruction of the old copy and insure that the backup copy was being used only as a replacement for the original.<sup>185</sup>

As an alternate to a physical exchange, a system could be designed in which the end user contractually agreed to return or destroy the original as part of the purchase. Although implemented for a different reason, Lexmark sells some of its replacement print cartridges under a "Prebate" program in which a contractual agreement is created with every buyer of their discounted cartridges.<sup>186</sup> The agreement binds the purchaser to either return the used cartridge to Lexmark or destroy it in exchange for getting a lower purchase price on the cartridge.<sup>187</sup> It prohibits the end user from using the old cartridge in any other manner.<sup>188</sup> The contract is based on an agreement on the package and

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183. See CHARLES C. POIRIER, *ADVANCED SUPPLY CHAIN MANAGEMENT: HOW TO BUILD A SUSTAINED COMPETITIVE ADVANTAGE* 8–10 (1999).

184. See 17 U.S.C. § 117(a)(1), (b) (2008).

185. See *id.* § 117(a).

186. Mizuki Sally Hashiguchi, *Recycling Efforts and Patent Rights Protection in the United States and Japan*, 33 COLUM. J. ENVTL. L. 169, 179 (2008).

187. See Tricia Judge, *ACRA Lawsuit Attacking Prebate Filed*, RECHARGER MAG., Sept. 5, 2001, <http://www.rechargermag.com/articles/33357/>.

188. Hashiguchi, *supra* note 186.

binds the consumer when they open the package of the new cartridge.<sup>189</sup> This approach has been found to create a valid contract between the manufacturer and the end user.<sup>190</sup>

Applying this concept to the replacement part software problem, an aftermarket manufacturer could create a similar contract with the end user of each of their replacement parts. Like the Lexmark Prebate example, the contract would require the end user to dispose of their expired part and not allow it to be used further in any way.<sup>191</sup> The copyright owner is protected in that the number of copies of the software being used is contractually controlled to be no greater than the number of works he originally sold. The difference between this example and the Lexmark application is that the contract is being created with the end user to guarantee the rights of a third party rather than the rights of one of the contracting parties.<sup>192</sup> At any point in time there are many additional copies in the parts supply chain but each cannot be legally used until it has legitimately replaced an original copy.

On the surface, the existence of many extra copies in the supply chain may be unsettling, but it is fundamentally no different than a consumer's right to make backup copies of works he owns and have extra copies in existence even though there is only a legal right to use one of them.<sup>193</sup> In other words, there is precedent for a scenario in which the number of copies lawfully in existence is greater than the number of copies which can lawfully be *used* at any point in time.

## CONCLUSION

Whether or not one thinks a vacuum cleaner bag or coffee filter should have electronics, the technology exists, is not cost prohibitive, and can arguably help the manufacturer make the products work better together. Should the end user be forced to repurchase a copy of the embedded software each time the bag or filter is replaced? A literal reading of the DMCA suggests that the manufacturer can electronically protect the software and effectively prohibit the end user, or anyone else, from accessing the software in an attempt to reuse it or develop an alternate solution.<sup>194</sup> While it may be true that the manufacturer can include the software in each item at very little incremental cost, the monopoly effect, not the incremental cost of the software, causes the

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189. *Ariz. Cartridge Remanufacturers Ass'n v. Lexmark Int'l, Inc.*, 421 F.3d 981, 983–84 (9th Cir. 2005).

190. *Id.* at 987.

191. *See* Hashiguchi, *supra* note 186.

192. *See id.*

193. *See* 17 U.S.C. § 117(a) (2008).

194. *See id.* § 1201(a)–(c).

market imbalance and increases prices for consumers over the long run.

Congress did not intend the DMCA to provide these types of restrictions. However, through combined use of doctrines and provisions of traditional pre-DMCA copyright law end users can arguably work around the DMCA provisions in order to lawfully reuse the software in replacement parts they purchase. Application of the first sale doctrine, fair use, agency principles, and the copyright provisions for software and computer maintenance may allow users to lawfully accomplish this type of software reuse despite the DMCA. Case law supports this interpretation but does not necessarily provide a solid precedent upon which to rely. Allowing these uses is consistent with both traditional copyright law and the objectives of the DMCA, and does not expose manufacturers or work owners to significant additional risk.

A contract approach may help solve the problem in the short term, but it is not the best overall approach because the contract approach “ignores the underpinnings of intellectual property law, which seek to balance the interests of society and artist/inventor by providing whatever limited set of rights is necessary to induce intellectual creation” and may upset that balance in the long run.<sup>195</sup> The nature of the DMCA is such that copyright owners cannot be trusted to set the balance of rights themselves and the nature of the market is such that it will not achieve this equilibrium on its own.<sup>196</sup>

Although an end user could defend his action of copying and reusing software in a replacement part based on the arguments provided here, the DMCA legislative amendments proposed by other critics are the best long term solution.<sup>197</sup> The hypothetical situations described here demonstrate that those amendments would not actually be a reduction in the protections currently provided to work owners, but simply a clarification for those situations in which end users want to reuse the software embedded in replacement parts. Because it would only be a clarification, the legislative hurdle is significantly lower than would be required for an actual reduction in rights.

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195. Zieminski, *supra* note 55, at 336.

196. *Id.* at 338.

197. *See supra* note 34.

