IS THERE A RIGHT TO REPAIR?

HEARING

BEFORE THE

SUBCOMMITTEE ON COURTS, INTELLECTUAL PROPERTY, AND THE INTERNET

OF THE

COMMITTEE ON THE JUDICIARY

U.S. HOUSE OF REPRESENTATIVES

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APPENDIX

QUESTION AND RESPONSES FOR THE RECORD

IS THERE A RIGHT TO REPAIR?

Tuesday, July 18, 2023

HOUSE OF REPRESENTATIVES

SUBCOMMITTEE ON COURTS, INTELLECTUAL PROPERTY, AND THE INTERNET

COMMITTEE ON THE JUDICIARY

Washington, DC

The Committee met, pursuant to notice, at 10:04 a.m., in Room 2141, Rayburn House Office Building, the Hon. Darrell Issa [Chair of the Subcommittee] presiding.

Members present: Representatives Issa, Fitzgerald, Bentz, Cline, Kiley, Lee, Fry, Johnson of Georgia, Nadler, Neguse, Ross, Lofgren, Dean, and Ivey.

Mr. ISSA. The Subcommittee will come to order. Without objection, the Chair is authorized to declare a recess at any time.

We welcome everyone here today to this hearing on the right to repair. I will recognize myself for an opening statement.

Thank you all for being here today and for advancing a better understanding of the critical issue for consumers, for business, and for the overall economy, and as you might hear me say repeatedly today, and for the environment.

This hearing marks a unique opportunity for Members of the Subcommittee to come together to learn the positions of all sides of the right-to-repair ecosystem that this Subcommittee has jurisdiction over. It is clear that this Subcommittee lacks jurisdiction in antitrust which will be taken up by another Committee, but it is that combination of the power of those who object to the right to repair and those who for various reasons have an interest in seeing reliable, low cost, predictable parts to be available from multiple sources whenever possible.

As I will say throughout the day and we will see throughout the day, these topics are passionate debate among the various stakeholders and that is an understatement including manufacturers, independent repair shops, environmentalists, and consumers.

As we explore the importance and need for right-to-repair legislation, it is critical that we consider all perspectives and to ensure a balanced and effective solution. When I say that there is an importance for Federal legislation, I say so in no small part because States are finding solutions on their own and a patchwork of 40–50 separate solutions leads to confusion and, in fact, to a lack of exactly what we are hoping to have which is protection for the

manufacturers and their copyrights and patents and an opportunity and an effective way to have safe replacement parts available to all.

Let there be no doubt, the right to repair the product that you have purchased is a fundamental principle that individuals and businesses should not, under any circumstances, have any doubt as to where the bright lines are in their rights. From smartphones to home appliances to the firmware on cars, there is today doubt. The doubt is State by State, product by product. Many companies have a long tradition of after-market products. I will take, for example, if you have a CJ Jeep. There are so many places you can buy so many parts and in fact, the mystique of that World War II derivative product and its success and longevity of more than half a century relies on the fact that you cannot only buy a new vehicle today, but you can buy a 40- or 50-year-old vehicle and there are a plethora of parts available. That same company markets other products that today they would have you believe you should not have the same choice you have in that iconic vehicle. Hopefully, we will bring up some of those ambiguities between the after-market and the manufacturers today.

The right to repair is about empowering consumers, promoting competition, and extending innovation. It can be a key; it can be a key driver of growth and prosperity. Right to repair fosters consumer choice and freedom to enable consumers to protect their investment and to extend the lifespan of their product and devices. It is a fundamental consumer principle.

The hearing is also an opportunity to hear and learn from those with questions and concerns and we need to hear from them. The right to repair does have to be balanced with a deep and legitimate concern for safety. I think there can be no better example than of the factory-equipped airbags. These are classic examples of products which are being higher and higher tech which, in fact, often are of great cost, but quite frankly, as someone who once was in the auto security market, we also know that manufacturers live in terror that an automobile that has had its airbags deployed will have a replacement or a bypass put on to that vehicle and ultimately lead to the death or injury of a passenger.

We must legitimately balance safety concerns. We must give an opportunity for those safety concerns to be heard. Let's have no doubt, flared fenders are, in fact, here to stay.

While I am proud to sponsor the SMART Act, a bill that will expand consumer choice for automobile collision repair parts, decrease costs for both drivers and insurers, and enhance competition in the automotive repair parts market, it is not a be-all solution. It is only a small piece of the solution that we have here today. By enacting comprehensive and well thought right to repair, we can create fair competition, sustainable repair ecosystems and benefit all shareholders.

Before I recognize the Ranking Member, I want to put forward two principles today. One well established, the concept that there is a standard essential patent, well understood, and by this Committee within our jurisdiction. There is no similar history of a standard essential copyright.

Today in discussing the right to repair, hopefully we will look at both of those as principles that should, in fact, create a balance between the intellectual property holder, the investment they have made, the legitimate right to return on their investment that they have versus the fact that there is often no other choice but to step directly on what one would claim to be a patent or a copyright if there is going to be any replacement part or other repair part created or installed.

So, with that, it is my pleasure to recognize the Ranking Member, Mr. Johnson of Georgia, for his opening statement.

Mr. JOHNSON of Georgia. Thank you, Mr. Chair, and I would like to begin by thanking you for bringing together experts from both sides of this important conversation.

Thank you also to our witnesses for being willing to lend us your time and your considerable knowledge today.

I feel privileged to serve as Ranking Member of a Subcommittee that supports creators and keeps our American innovation system strong. Together, we on this Subcommittee, tackle complicated intellectual property policy issues that have no clear solutions in an often bipartisan manner and I am looking forward to doing so again today.

Right to repair is one such thorny policy issue and the debate over an appropriate solution encompasses issues and individuals far outside the scope of this Subcommittee. Environmentalists, economists, and antitrust experts, to name a few, have all weighed in on the problem and proposed solutions, but we are here today because the question of repairability incorporates intellectual property concerns as well, including, but not limited to, the design patent and copyright spaces.

Repair shops, once a common feature of every small-town main street, have become largely a distant memory. We have all had the experience of having a home appliance break and discovering that it would cost more to fix than to simply replace. So, we toss the microwave oven or vacuum cleaner or desk lamp into the trash and head to our local store for a new one. Fault for the demise of repair has been leveled at changes in production, poorly made devices, and an absence of economic incentives. These charges are not for us to determine today, but I would note that the incorporation of software into everyday items from coffee makers to cars has made an already challenging discussion even more complicated.

Because businesses that seek to repair these broken items argue that some of the laws protecting patent and copyright holders preempt them from doing so, and they say that these intellectual property provisions are being deployed outside their contemplated purpose when the laws were first enacted.

Others assert that this argument is what we have heard time and time again from those who find innovation protections inconvenient through their industry. They remind us that intellectual property laws exist to encourage investment in new ideas.

I am here today to listen and learn and I am looking forward to hearing from our witnesses how any legislative solutions that come before this Committee can continue to protect our inventors and creators while increasing consumer choice.

Much of the conversation about copyright interference with the repair market is focused on Section 1201 of the Digital Millennium Copyright Act or DMCA, which prevents digital piracy of online copyrighted works. When the DMCA was passed in 1998, those of us who had access to the internet at home used a dial-up connection. We went out and bought a CD if we wanted to listen to a new album and phone calls were likely made on a device attached to the wall by a cord.

Conversely, today, even the most mundane devices are connected to the Internet of Things. The world has changed and with it a number of items that fall under the auspices of Section 1201. In a 2017 report, the Copyright Office itself acknowledged that Section 1201(a), its protections for access controls, have the potential to implicate activities far outside the traditional scope of copyright law. Yet, Section 1201 contains a provision allowing for triennial exemptions that is designed to prevent non-copyright infringers from running afoul of the statute.

I am looking forward to hearing from the assembled witnesses about whether the DMCA and Section 1201, in particular, is working as intended. The debate over right to repair is not limited to copyright issues. Design patents, particularly, design patents for component parts of a vehicle are often the target of considerable criticism by car repair experts. As we explore solutions to this and other areas of intellectual property concern voiced by the repair community, it is crucial that we keep in mind the importance of patent protection through innovation and seek to ensure we leave behind a healthy system for generations to come.

We should all agree that there is a problem with repair today and when the only option is to just buy a new one, we all lose. Finding a solution, however, is a weightier task, but it is one I look forward to seeking together.

Thank you again, Chair Issa, for holding this important hearing and I look forward to hearing from our esteemed witnesses.

Mr. ISSA. I thank the gentleman. We now recognize the Ranking Member of the Full Committee, Mr. Nadler, for this opening statement.

Mr. NADLER. Thank you, Mr. Chair. Mr. Chair, debate over whether consumers and repair shops have a right-to-repair devices and what the limitations to that right might be has grown louder over the past 10 years as technological innovations had added complexity to our products.

Many of the laws protecting manufacturers and preventing individuals from bypassing access controls or making a replacement part are the same statutes that protect inventors and creators. Intersection of the right-to-repair movement with intellectual property rights is naturally a delicate issue and I appreciate the opportunity to work toward a bipartisan solution that respects both consumers and creators.

I am grateful to Mr. Issa and Mr. Johnson for bringing in witnesses with wide-ranging perspectives on this matter and I am looking forward to hearing what role they believe Congress should play in addressing the issue of right to repair as it relates to intellectual property laws.

The battle between repair businesses and manufacturers is no worse public or as acrimonious as it is between car companies, known in this context as original equipment manufacturers or OEMS, and repair shops. What was once exclusively a fight over design patent protections for vehicle component parts has expanded to encompass a broader swath of disagreements that expand far outside the purview of this Subcommittee.

Vehicles are no longer simply gas-powered engines. Cars are computers on wheels. Who can repair those computers and how is already being considered at the State level. Citizens in Massachusetts, for example, passed the ballot initiative requiring any car with a telematics system to incorporate an open access data system allowing any repair shop to access the data. In response, some car companies simply cutoff access to remote start and other software-powered accessories, depriving consumers of these features.

Determining who should be able to access and repair vehicle software is anything but straightforward and we must consider the serious personal privacy, cybersecurity, and intellectual property concerns inherent in automotive right to repair. As we consider these complex questions, we should remember that most consumers just want somebody to fix their cars when they break. For years, for generations, Americans have taken their cars to a local garage when something goes wrong, a right that was reaffirmed by a 2014 Memorandum of Understanding between the repair shops and the OEMs. It is highly concerning to me that in spite of the 2014 MOU, rather than seeking a fix to the safety and cyber concerns inherent in technological innovation, OEMs have sought to steer customers back to dealerships and away from the car mechanic that they trust.

I was glad to see the recent agreement between OEMs and independent repair facilities on this issue and I am looking forward to hearing from our witnesses about what we can do moving forward to address this issue to the extent that it overlaps with intellectual property concerns.

Software innovation is not limited to trucks and cars and other motor operated forms of transportation. The onset of the Interned of Things has prompted new debates over intellectual property protections and whether access to that software should be granted to make repairs.

Many of us here today have had the experience of cracking our smartphone screen and spending the day trying to figure out how quickly we can get it back up and running. Right-to-repair advocates argue that a customer should be able to take the phone to any repair shop, not just to the manufacturer and they argue that such consumer choice would drastically lower the right to the cost of repair. Moreover, they say copyright protections designed to protect creators are being used to prevent such easy fixes, not just for phones, but also for printer cartridges, kitchen appliances, and other typically non-internet connected devices. We must proceed with great caution when considering any changes to the copyright laws to ensure that the fundamental rights of creators are protected.

American laws protect software developers by granting them copyright ownership over the lines of code they write and the soft-

ware they create. Section 1201 of the Digital Millennium Copyright Act prohibits circumventing any measures designed to prevent unauthorized access to this copyrighted material. Section 1201 also sets forth the process every three years to grant certain exemptions to these access controls and I look forward to hearing from our witnesses on whether the consumer protections we need can be found within the existing 1201 process or whether further reforms are needed.

The solution to protecting consumers in the market for repairs cannot be that copyright protections and design patents do not matter in the United States or that they only matter when they are convenient. Consumer protection and consumer choice, however, are also important and it is incumbent upon us in Congress to protect innovation while ensuring that everyday Americans aren't left holding the bill.

Congress does its best work when we work together across the aisle, and I am optimistic that this issue can be one of those rare opportunities in today's political environment where we can reach consensus.

I look forward to hearing what our witnesses from both sides of the debate have to say and again, I thank the Chair and Ranking Member for putting this panel together today. I yield back the balance of my time.

Mr. ISSA. I thank the Ranking Member. Without objection, all other opening statements will be included in the record. It is now my pleasure to introduce the panel of witnesses.

Mr. Scott Benavidez, or close to it, is the owner of Mr. B's Paint and Body Shop, a family owned and operated collision repair facility in Albuquerque, New Mexico. He is the Chair of the Automotive Service Association or ASA which represents and advocates for automotive repair industry.

Mr. Devlin Hartline is an Intellectual Property Innovation Legal Fellow at the Hudson Institute's Forum for Intellectual Property. He previously served as an Assistant Professor at George Mason University, the Scalia Law School, where he taught a course in intellectual property law and copyright, patent, and trademark law.

Professor Aaron Perzanowski, or even further from the accurate perhaps, Professor is a Professor at the Thomas W. Lacchia Professor of Law at the University of Michigan Law School. His courses focus on intellectual property, trademarks, copyrights, and the law and policy of repair. He is an author of three books on intellectual property including the catchy term, the right to repair.

Mr. Paul Roberts is the founder of SecurRepairs, an organization of information technology and security professionals who support the right to repair. He is also the publisher and Editor-in-Chief of *The Security Ledger*, an independent security news website.

Mr. Kyle Wiens is the cofounder and CEO of *iFixit*, a website and retailer that provides repair guides for consumer products and sells replacement parts and specialized tools, meaning those tools that let you reset that pesky light on your dash. *iFixit* also advocates for the right to repair and other legislation.

We welcome our witnesses here today. As is the rule of this Committee, I would ask you all to please rise to take the oath and raise your right hand as tradition.

Do you swear or affirm, under penalty of perjury, that the testimony each of you is about to give will be the truth, and correct to the best of your knowledge, information, and belief, so help you God?

Thank you, please be seated. Let the record reflect that all witnesses answered in the affirmative.

As you may have seen on CSPAN in the past, we will tell you that you have five minutes and yes, we will gavel. However, your entire opening statements, along with additional information you want to have placed in the record now or for the five days after this hearing, will be put in. So, let there be no doubt, all that you want to say will be said in writing if not said orally here today.

With that, please introduce yourself so I can get your pronunciation exactly right, Mr. Benavidez.

Mr. BENAVIDEZ. Benavidez. Scott Benavidez.

Mr. ISSA. OK, thank you, Scott. You are recognized.

STATEMENT OF SCOTT BENAVIDEZ

Mr. BENAVIDEZ. Thank you. Good morning, Chair Issa, Ranking Member Johnson, and Members of the Subcommittee. Thank you for providing me the opportunity to testify before you today.

My name is Scott Benavidez. I am the Chair of the Automotive Service Association's Board of Directors. I am also a second-generation shop owner from Albuquerque, New Mexico, Mr. B's Paint and Body Shop.

Independent automotive repair shops are responsible for the majority of all post-warranty repair services in the United States. ASA has been a steadfast advocate for right-to-repair principles, the right of car owners and independent repair shops to access vehicle service information needed to diagnose and repair vehicles for decades. We take this unequivocal stance because our members are on the front lines of the vehicle data access issue, and we have been very clear. We want to have access to the data necessary to repair our customers' vehicles.

The 1990 Clean Air Act amendments assured independent shops the same emission service information that was provided by automobile manufacturers to franchised car dealers. In 2002, ASA signed an agreement with automakers stipulating that independent automotive repair shops would have access to the same emissions and nonemission service information provided to the manufacturers' franchised dealerships.

Since 2002, the vehicles Americans rely on have become increasingly sophisticated and we know that rate of innovation will only accelerate. The way vehicle issues are diagnosed and repaired, evolves in tandem with technological advancement. The modern vehicle is essentially a computer on wheels and just like a typical computer, an enormous amount of information is passed wirelessly to and from the vehicle. In many instances, our shops wouldn't be able to diagnose and fix problems our customers ask them to solve if they didn't have access to telematics.

Car owners deserve a competitive market from which they can select or repair who will fix their vehicle at the best price. Although today automotive repairers have access to vehicle data necessary for repairs, our industry has been concerned about the path

forward for obtaining data in the vehicles moving into the marketplace. Newer vehicle technologies with an increasing number of sensors will present a challenge to our shops without access to the repair data. That is why last week, ASA proudly announced that it reached a landmark agreement with the automakers that ensures independent repair shops can diagnose and repair their customers' vehicles without hindrance from telematics nor any other innovation.

With regards to the SMART Act, we support a competitive crash part marketplace, but without additional quality standards, we are concerned about the impact on shops and consumers. Although collision shops work closely with insurers as part of the direct repair program, we are mindful that our customers' vehicles are our first priority and that these vehicles must be safe and satisfactory to the customer when they leave our shops.

We do have concerns when some insurers insist on repairs that are simply cheaper and quicker without regard to quality and safety. Repairers understand better than anyone the threat of replacement crash parts or lesser quality. We can and should have a competitive marketplace that doesn't compromise quality or safety. Deciding to only cover the cheapest option without understanding implications for quality leaves collision shops and their customers in a tough position. Very few consumers have the knowledge about these types of crash parts used on their vehicles as the numerous crash parts in the marketplace such as OEM, original equipment manufacturer, parts certified aftermarket parts, reconditioned crash parts, and recycled crash parts. Repairers can make recommendations, but their customers are unlikely to adhere if the insurance won't cover them.

One of the top concerns we hear from our members and others at collision industry events is that collision repairs facilities should adhere to OEM repair procedures. This doesn't mean that OEM parts must be used in all cases, but OEM repair procedures should always be followed. Adhering to the manufacturers' guidelines allows independent repair shops to assure car owners their cars were repaired to the highest possible standard and protects them from unjust liability. Assuring more imported and other crash parts in the marketplace with limited quality standards gives insurance companies even more power to mandate that cheaper parts that may or may not meet quality expectations be installed, while leaving car owners and repairers to suffer the consequences.

We fear the absence of quality standards in the SMART Act could negatively impact the quality of replacement crash parts, parts that look the same, may differ significantly in terms of quality and safety. Once again, car owners and repairers stand to suffer the most direct injuries and repercussions.

Thank you again, Chair Issa, for convening this important hearing and allowing me to share the perspective of ASA and independent repair shops. I look forward to answering your questions today.

[The prepared statement of Mr. Benavidez follows:]

STATEMENT OF

MR. SCOTT BENAVIDEZ
CHAIRMAN OF THE BOARD OF DIRECTORS
AUTOMOTIVE SERVICE ASSOCIATION
NORTH RICHLAND HILLS, TEXAS

BEFORE THE
SUBCOMMITTEE ON COURTS, INTELLECTUAL PROPERTY, AND THE INTERNET
U.S. HOUSE COMMITTEE ON THE JUDICIARY
WASHINGTON, D.C.

JULY 18, 2023

Good morning, Chairman Issa, Ranking Member Johnson, and Members of the Subcommittee. Thank you for providing me the opportunity to testify before you today. My name is Scott Benavidez. I am the Chairman of the Automotive Service Association's Board of Directors. I am also the second-generation owner of Mr. B's Paint & Auto Body Shop Inc. in Albuquerque, New Mexico. I am here today on behalf of the Automotive Service Association.

ASA is the largest and oldest national organization committed to protecting the automotive repair industry. Our members, who hail from all fifty states, own and operate automotive mechanical and collision repair facilities. Independent automotive repair shops are responsible for the majority of all, post warranty, repair services in the United States. ASA advocates for the interests of its members and their customers.

ASA has been a steadfast advocate for right-to-repair principles – the right of car owners and independent repair shops to access vehicle service information needed to diagnose and repair vehicles – for decades. We take this unequivocal stance because our members are on the front lines of the vehicle data access issue and have been very clear: we want to have access to the data necessary to repair our customers' vehicles. ASA worked with the U.S. House Energy and Commerce Committee and Senate Commerce, Science, and Transportation Committee to place language in the 1990 Clean Air Act Amendments that assured independent shops the same emissions service information that was provided, by the automobile manufacturers, to franchised car dealers. Then, in 1995, the U.S. Environmental Protection Agency (EPA) standardized, for all vehicles sold in the United States, an OBD port, which provides access to vehicles' emissions control diagnostic systems. In 2002, ASA signed an agreement with automakers stipulating that independent automotive repair shops would have access to the

same emissions and non-emissions service information provided to the manufacturers' franchised dealerships. Since 2002, the vehicles Americans rely on have become increasingly sophisticated, and we know that the rate of innovation will only accelerate. (attachment A)The way vehicle issues are diagnosed and repaired evolves in tandem with technological advancement.

The modern vehicle is essentially a computer on wheels, and just like a typical computer, an enormous amount of information is passed wirelessly to and from the vehicle. We call that wireless communication "telematics" in the automotive world. In many instances, our shops wouldn't be able to diagnose and fix the problems their customers ask them to solve if they didn't have access to telematics. This situation might not only harm repairers, but also drivers. Car owners deserve a competitive market from which they can select a repairer who will fix their vehicle at the best price.

Although today automotive repairers have access to vehicle data necessary for repairs, our industry has been concerned about the path forward for obtaining data in the vehicles moving into the marketplace. Newer vehicle technologies with an increasing number of sensors will present challenges to our shops without access to repair data. That's why, last week, ASA proudly announced it had reached a landmark agreement with automakers that ensures independent repair shops can diagnose and repair their customers' vehicles without hinderance from telematics nor any other innovation. Most importantly, it encourages a competitive repair market that yields the fairest prices for drivers and the highest quality safety outcomes. (attachment B)

With regard to the SMART Act, ASA supports a competitive parts marketplace. ASA has a long history of working with insurance companies in ensuring our customers the best possible repair experience following an accident. ASA is supportive of insurer direct repair programs (DRPs) that are open and fair to both vehicle owners and collision repairers. Many of our leaders serve on DRP advisory boards of state and national insurance companies. Although we work closely with insurers as part of DRPs, we are mindful that our customers' vehicles are our first priority and that these vehicles must be safe and satisfactory to the customer when they leave our repair shops. We do have concerns when some insurers insist on repairs that are simply "cheaper and quicker" without regard for quality and safety.

I cannot overstate the importance of vehicle safety to the collision repair industry. Repairers understand better than anyone the threat posed by replacement parts of lesser quality. Automotive service business owners, their employees, their families, and their friends drive on and walk alongside the same roads as everyone else. The threat to their safety posed by defective vehicles on the road is also the exact same threat faced by everyone else. ASA believes we can and should have a competitive marketplace that doesn't compromise quality or safety. Deciding to only cover the cheapest option without understanding implications for quality leaves collision shops and their customers in a tough position.

The automobile is the second most expensive purchase made by most Americans. Although the automobile is a major part of most Americans' daily lives, few vehicle owners have much knowledge about automotive repair. This is particularly true relative to collision repair. After an accident, other than contacting law enforcement or other emergency personnel, the vehicle owner contacts their insurance company. Depending on state laws, consumers are

advised about repair facilities by insurers, or they may have some familiarity with repair shops. They might even search the internet for a repairer. It's at this point that vehicle owners lose control. Very few consumers have any knowledge about the types of crash parts used to repair their vehicles as there are numerous crash parts choices in the marketplace, such as Original Equipment Manufacturer (OEM) parts, certified aftermarket crash parts, reconditioned crash parts, and recycled crash parts. Repairers can make recommendations, but their customers are unlikely to adhere if insurance won't cover it. Quality standards are essential for crash parts.

One of the top concerns we hear from our members and others at collision industry events is that collision repair facilities should adhere to OEM repair procedures. This doesn't mean that OEM parts must be used in all cases, but OEM repair procedures should always be followed. OEMs develop, test, and verify repair procedures to restore the safety and functionality of the repaired vehicle. Adhering to the manufacturers' guidelines allows independent repair shops to assure car owners that their cars were repaired to the highest possible standard and protects them from unjust liability. Assuring more imported and other crash parts in the marketplace with limited quality standards gives insurance companies even more power to mandate that cheaper parts that may or may not meet quality expectations be installed, while leaving car owners and repairers to suffer the consequences of that dictate.

We also fear that the absence of quality standards in the SMART Act would negatively impact the quality of replacement crash parts. Section 2, subsection 2 would allow aftermarket manufacturers to make or offer to sell within or import into the United States "any article of manufacture that is similar or the same in appearance" to a part produced by an OEM if used "to restore the motor vehicle to the appearance of the motor vehicle as originally

manufactured…", after the OEM part has been on the market for thirty months, without infringing upon the OEM's design patent. In other words, car owners, repairers, and insurance companies could be misled into believing that parts that *look* the same *are* the same, when, in fact, they differ significantly in terms of quality and safety. Once again, car owners and repairers stand to suffer the most direct injuries and repercussions.

Thank you again, Chairman Issa, for convening this important hearing and allowing me to share the perspective of ASA and independent repair shops. I look forward to answering your questions today.

ATTACHMENT - A

September 20, 2002

The Honorable Byron Dorgan
Chairman
Subcommittee on Consumer Affairs, Foreign Commerce and Tourism
U.S. Senate Commerce, Science, and Transportation Committee
Washington, D.C. 20510

Dear Chairman Dorgan:

As the Subcommittee requested, our associations have discussed the issues reviewed at the Subcommittee's July 30, 2002 hearing on Customer Choice in Automotive Repair Shops (S. 2617). We believe the following commitments by automakers will provide independent repairers the necessary service information and diagnostic tools to compete and serve consumers in the marketplace.

The members of the Alliance of Automobile Manufacturers and the Association of International Automobile Manufacturers listed below fully support the following:

> ***Automobile manufacturers hereby commit to make available, by August 31, 2003, emission and non-emission-related service information, training information, and diagnostic tools in the same manner and to the same extent as specified by California Air Resources Board (CARB) regulations for emission-related systems and components. This means that 1) the same service and training information related to vehicle repair will be made available to independent repair shops either via the Internet, or in the same manner and extent as it is made available to franchised dealerships and 2) the same diagnostic tools related to vehicle repair that are made available to the franchised dealers will be made available to the independent repair shops. These will be made available at a reasonable price consistent with the guidelines provided in CARB regulations. The service and training information and manufacturer tools will be available to independent repair shops without the need for them to return to a franchised dealership (to the extent allowed by law).***

This commitment will continue the viability of the automotive service industry and preclude the need for current legislation while we work on implementation. Moreover, successful implementation will eliminate the need for future state and federal legislation.

Manufacturers recognize the value of third-party providers of tools, service and training information and are committed to making available to information providers and tool companies the service and training information, tools and tool information. The National Automotive Service Task Force will continue to provide a forum for industry and aftermarket to resolve service information issues. We ask that the Subcommittee and its staff periodically review the progress being made toward the objectives above.

We believe this continues a long tradition of the independent repairer's important position in the automotive industry. It also demonstrates our mutual commitment to fair and open competition in the auto service industry and to consumer choice in seeking these services. Please feel free to call on our organizations if you have any questions.

Sincerely,

Josephine S. Cooper
President & CEO
Alliance of Automobile Manufacturers, Inc.

Timothy C. MacCarthy
President & CEO
Association of International Automobile Manufacturers, Inc.

Dan Frohlich
Chairman
Automotive Service Association

Automobile Makes:

Acura	*Hyundai*	*Mitsubishi*
Aston-Martin	*Infiniti*	*Nissan*
Audi	*Isuzu*	*Oldsmobile*
BMW	*Jaguar*	*Pontiac*
Buick	*Jeep*	*Saab*
Cadillac	*Kia*	*Saturn*
Chevrolet	*Land Rover*	*Subaru*
Chrysler	*Lexus*	*Suzuki*
Dodge	*Lincoln*	*Toyota*
Ford	*Mazda*	*Volvo*
GMC	*Mercedes-Benz*	*Volkswagen*
Honda	*Mercury*	

HONDA

American Honda Motor Co., Inc.
1919 Torrance Boulevard
Torrance, CA 90501-2746
Phone (310) 783-2000

16 September 2002

To whom it may concern:

American Honda Motor Inc., Co. is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,

John Petas
Sr. Vice President
Parts & Service Operations

VOLKSWAGEN

3800 Hamlin Road
Auburn Hills, MI 48326
Tel. (248) 340-5000

September 20, 2002

Ms. Josephine S. Cooper
President & CEO
Alliance of Automobile Manufacturers
1401 H Street NW, Suite 900
Washington, D.C. 20005

Dear Ms. Cooper:

Volkswagen and Audi are committed to providing the tools and information that both independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).
We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.
Sincerely,

Kip Krilgel
Process Leader
Technical Service

Received: 9/20/02 3:14PM; 12017820764 ; Alliance of Automobile Manufact ; Page 1
SEP 20 2002 15:20 FR BMW ENV.ENG.MONTVALE 12017820764 TO 19164477349 P.01/01

BMW Group

September 20, 2002

Ms. Josephine S. Cooper
President & CEO
Alliance of Automobile Manufacturers
1401 H Street, NW, Suite 900
Washington, DC 20005

Dear Ms. Cooper:

BMW Group is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,

Hans Dyenz

Vice President, Aftersales and Engineering

Company
BMW of North America, LLC

BMW Group Company

Mailing address
PO Box 1227
Westwood, NJ
07675-1227

Office address
300 Chestnut Ridge Road
Woodcliff Lake, NJ
07677-7731

Telephone
(201) 307-4000

Fax
(201) 307-4095

Internet
bmwusa.com

GM Service and Parts Operations

General Motors Corporation
30501 Van Dyke Avenue
MC: 480-204-001
Warren, MI 48090

September 23, 2002

Josephine Cooper, President
Alliance of Automobile Manufacturers
1401 H Street, N. W., Suite 900
Washington, DC 20005

Dear Ms. Cooper:

General Motors Corporation is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002 joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,

Peter Lord
Executive Director, Service Operations

RB/mce

Received: 9/23/02 3:50PM; 248 576 7928 -> Alliance of Automobile Manufact : Page 2
SEP 23 '02 15:50 FR 248 576 7928 248 576 7928 TO 819164477349 P.02/02

DAIMLERCHRYSLER

DaimlerChrysler Corporation

September 17, 2002

Ms. Josephine S. Cooper
President & CEO
Alliance of Automobile Manufacturers
1401 H Street, NW, Suite 900
Washington, DC 20005

Dear Ms. Cooper,

The Chrysler Group is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,

Reginald R. Modlin
Director
Environmental & Energy Planning

Ford Motor Company

Frank M. Ligon
Director, Vehicle Service & Programs
Ford Customer Service Division
fligon@ford.com
Phone: 313-323-8467

Ford Motor Company
1700 Fairlane Drive
Allen Park, Michigan 48101

September 17, 2002

To whom it may concern:

Ford Motor Company is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers - the motoring public.

Sincerely,

Frank M. Ligon

Frank M. Ligon

HYUNDAI AMERICA TECHNICAL CENTER, INC.

A Subsidiary of
Hyundai Motor Company (Korea)

5075 Venture Drive
Ann Arbor, MI 48108

Tel: (313) 747-6600
Fax: (313) 747-6699

September 24, 2002

To whom it may concern:

Hyundai Motor America, Inc. is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,

Alfred Gloddeck

Alfred Gloddeck

Senior Manager – Corporate Affairs

Sent by: Nissan North America Govt Affair703 456 2551; 09/16/2002 19:14; #678; Page 1/1
To: YN E-Fax At: 915092725671

NISSAN NORTH AMERICA, INC.

Government Affairs Office
196 Van Buren Street Suite 450
Herndon, VA 20170-5337
Main Phone: (703) 456-2560
FAX: (703) 456-2551

September 20, 2002

To whom it may concern:

Nissan North America, Inc. is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers -- the motoring public.

Sincerely,

Harland Reid

Harland Reid
Senior Director
Government Affairs
Nissan North America, Inc.

NNA-21-DC

ISUZU

September 20, 2002

To whom it may concern:

American Isuzu Motors Inc. is committed to providing the tools and information that *both* independent repair shops and authorized dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,

Pete Vavan
Executive Manager
Service Group Operations
American Isuzu Motors Inc.

American Isuzu Motors Inc.
13340 183rd Street
Cerritos, California 90702-6007
562 229-5000
562 926-3082 Fax

We're looking to the future by recycling today

Jaguar Cars Limited, Browns Lane, Allesley, Coventry CV5 9DR, England
Telephone (024) 7640 2121 www.jaguar.com

Mrs J S Cooper
President and CEO
Alliance of Automobile Manufacturers
1401 H Street NW
Suite 900
Washington D.C.
20005
United States of America

20 September 2002

Dear Mrs Cooper

Jaguar Cars is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Yours sincerely

Bob Townsend
Manager Technical Service and Communications

DIRECT TELEPHONE

FAX

EMAIL

Kia Motors America, Inc.
9801 Muirlands Blvd.
P.O. Box 52410
Irvine, CA 92619-2410
(949) 470-7000

September 20, 2002

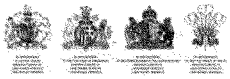
To whom it may concern:

Kia Motors America is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,

Donald K. Pearce
Vice President, Service



LAND ROVER

Mrs J S Cooper
President and CEO
Alliance of Automobile Manufacturers
1401 H Street NW
Suite 900
Washington D.C.
20005
United States of America

20 September 2002

Dear Mrs Cooper

Land Rover is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Yours sincerely

Bob Townsend
Manager Technical Service and Communications

Land Rover
Browns Lane, Allesley
Coventry CV5 9DR
Telephone 02476 402121
Facsimile 02476 202883

TOYOTA

Toyota Motor Sales, U.S.A., Inc.

September 23, 2002

Ms. Josephine S. Cooper
President & CEO
Alliance of Automobile Manufacturers
1401 H Street NW, Suite 900
Washington, D.C. 20005

Dear Ms. Cooper,

Toyota Motor Sales, U.S.A., Inc., fully supports the proposed joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,
TOYOTA MOTOR SALES, U.S.A., INC.

Robert C. Daly
Group Vice President
Toyota Customer Services

Mazda North American Operations

Jay Amestoy
Vice President
Public and Government Affairs

mazda

September 18, 2002

Mr. Steven P. Douglas
Director, Environmental Affairs
Alliance of Automobile Manufactureres
428 J Street, Suite 400
Sacramento, CA 95814-2394

Dear Mr. Douglas:

Mazda North American Operations is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,

7755 Irvine Center Drive Irvine, CA 92618-2922 Telephone 949 727 1990
POBox 19734 Irvine, CA 92623-9734 Facsimile 949 727 6813 Internet http://www.mazdausa.com

Mercedes-Benz

Mercedes-Benz USA, LLC
Environmental & Safety Engineering Dept.

23 September 2002

Ms. Josephine S. Cooper
President & CEO
Alliance of Automobile Manufacturers
1401 H Street NW, Suite 900
Washington, D.C. 20005

Ms. Cooper,

Mercedes-Benz USA, LLC is committed to providing the tools and information that both independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers - the motoring public.

Sincerely,

Michael F. Kunz
Department Manager
Technical Information
Mercedes-Benz USA

Michael Schweizer
Department Manager
Environmental & Safety Engineering
Mercedes-Benz USA

MITSUBISHI MOTORS CORPORATION

CABLE ADDRESS: BISHIJIKO OKAZAKI
1, NAKASHINKIRI, HASHIME-CHO, OKAZAKI AICHI PREF., JAPAN
TELEPHONE: 0564-32-5281
TELEFAX: 0564-33-1214
TELEX: 4537551 MMCOKZJ

September 20, 2002

Ms. Josephine S. Cooper
President & CEO
Alliance of Automobile Manufacturers
1401 H Street NW, Suite 900
Washington, D.C. 20005:

Mitsubishi Motors Corporation is committed to providing the tools and information that *both* independent repair shops and authorized dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely Yours,

K.Watashige, General Manager
International After-Sales Dept.
Mitsubishi Motors Corporation

SAAB CARS USA, INC.

September 24, 2002

To whom it may concern:

Saab Cars USA, Inc. is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,

Daniel L. David

Vice President, Parts & Service

Saab Cars USA, Inc.
4405-A International Blvd.
Norcross, GA 30093

Telephone
770 279-0100

Fax
770 279-6499

Website
www . saabusa . com

Received: 9/20/02 10:03AM; -> Alliance of Autcmobile Manufact : Page 2

FROM : FAX NO. : Sep. 20 2002 01:07PM P2

SUBARU

Subaru of America, Inc.
Subaru Plaza
PO Box 6000
Cherry Hill, NJ 08034-6000
856-488-8500
www.subaru.com

September 17, 2002

Ms. Josephine S. Cooper
President & CEO
Alliance of Automobile Manufacturers
1401 H Street NW, Suite 900
Washington, D.C. 20005

Dear Ms. Cooper:

Subaru of America, Inc. is committed to providing the tools and information that both independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,

James C. Sinclair

James C. Sinclair
Vice President / Service

JCS/rai

cc: file

AMERICAN SUZUKI MOTOR CORPORATION
AUTOMOTIVE

To whom it may concern:

American Suzuki Motor Coporation is committed to providing the tools and information that *both* independent repair shops and franchised dealers need to swiftly and accurately repair vehicles. To this end, we fully support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislation serves our interest, those of the independent repair industry, and most importantly, our mutual customers – the motoring public.

Sincerely,

Douglas W. Semer
Automotive Service Director

3251 E. Imperial Highway, P.O. Box 1100, Brea, CA 92822-1100 • Tel (714) 996-7040 • FAX(714) 524-2512 • http://www.suzuki.com

September 24, 2002

To whom it may concern:

The intent of this correspondence is to state that Volvo is committed to providing the necessary tools and service information, which will facilitate the independent repair shops and our franchised retailers to perform vehicle repairs. Therefore, we support the September 20, 2002, joint letter to Senator Byron Dorgan from the Automotive Service Association (ASA), Alliance of Automobile Manufacturers, and the Association of International Automobile Manufacturers (AIAM).

We believe that this commitment to cooperation instead of legislative initiatives will better serve our interest and the interests of all whom require the information and material.

Sincerely,

Volvo Cars of North America, LLC
Aftersales Business Unit, Technical & Regulatory

Dan Doku
Daniel E. Doku
Manager, OBDII certification & Compliance
Regulations & Compliance Department

Aftersales Business Unit
Daniel E. Doku
Volvo Cars of North America, Inc.
7 Volvo Drive, Rockleigh, NJ, USA 07647-0913
201-767-4789, Fax: 201-768-8695

ATTACHMENT - B

July 11, 2023

The Honorable Maria Cantwell
Chairwoman
U.S. Senate Committee on Commerce, Science, and Transportation
Washington, D.C. 20510

The Honorable Ted Cruz
Ranking Member
U.S. Senate Committee on Commerce, Science, and Transportation
Washington, D.C. 20510

The Honorable Cathy McMorris Rodgers
Chairwoman
U.S. House Committee on Energy and Commerce
Washington, D.C. 20515

The Honorable Frank Pallone
Ranking Member
U.S. House Committee on Energy and Commerce
Washington, D.C. 20515

The Honorable Jim Jordan
Chairman
U.S. House Committee on the Judiciary
Washington, D.C. 20515

The Honorable Jerrold Nadler
Ranking Member
U.S. House Committee on Judiciary
Washington, D.C. 20515

The Honorable Dick Durbin
Chairman
U.S. Senate Committee on the Judiciary
Washington, D.C. 20510

The Honorable Lindsey Graham
Ranking Member
U.S. Senate Committee on the Judiciary
Washington, D.C. 20510

Dear Chairwoman Cantwell, Ranking Member Cruz, Chairwoman McMorris Rodgers, Ranking Member Pallone, Chairman Jordan, Ranking Member Nadler, Chairman Durbin, and Ranking Member Graham:

We write today with an important announcement on a national automotive right-to-repair commitment between representatives of the independent repair community and automobile manufacturers.

The attached commitment – entered into by the Automotive Service Association, the Society of Collision Repair Specialists, and Alliance for Automotive Innovation – is noteworthy for it represents thousands of auto repair professionals and small businesses in all 50 states as well as the manufacturers producing most vehicles sold in the U.S.

The Federal Trade Commission, the government's top consumer protection and competition agency, has rightfully placed a focus on the repair options available to consumers for all the products they purchase – far beyond just automobiles. They have previously highlighted the automotive repair marketplace as a model for other industries to follow, noting it is "working well." We agree! Today, 70 percent of post-warranty vehicle repairs today happen outside the dealer network, while automakers' own certified collision networks are comprised of shops that are more than 70 percent non-dealer owned. In other words, competition is alive and well in the auto repair industry.

Our commitment ensures that this competition remains and guarantees consumers a range of service options for their vehicles well into the future, including independent repairers, national service chains, authorized dealers, or undertaking the repair themselves, if technically inclined. It also guarantees the country's small and independent auto repairers continued unrestricted access to the various tools, information, and data needed to repair vehicles.

This commitment was created with our mutual and valued customers in mind: vehicle owners. It affirms that consumers deserve access to safe and proper repairs throughout a vehicle's lifecycle. Finally, it is built to last because it anticipates changes in automotive technologies and market evolutions.

It should reassure you that independent repairers and automakers are not at odds on automotive data access, but rather in lockstep on this fundamental principle: consumers should have choice when it comes to repair options and the ability to have their vehicle serviced in well-equipped shops by well-trained technicians anytime, anywhere, anyplace.

We have attached a copy of our full commitment to this letter, but highlight a few points below:

- **Access to diagnostic and repair information:** We reaffirm the 2014 Memorandum of Understanding and commit that independent repair facilities shall have access to *the same* diagnostic and repair information that auto manufacturers make available to authorized dealer networks. This applies to all vehicle technologies regardless of powertrain, including gasoline, diesel, fuel cell, electric battery, hybrid, and plug-in hybrid electric powertrains. This also applies to telematic data needed to diagnose and repair a vehicle if not otherwise available.

- **Education and training:** We pledge to work together on education and training programs so mechanical and collision repair facilities are aware of their right to this information and know exactly where to find it, whether directly through an automaker's repair website, a shared access point like www.OEM1Stop.com or via third-party information providers, software, and tools.

- **Future Advancements:** Automotive technology continues to advance, with nearly every vehicle now equipped with advanced safety features and increasingly efficient propulsion systems. Repairers meet this challenge every day through investments in training and equipment. As vehicle technologies and obligations on repairers evolve, this

commitment provides an avenue to ensure a level playing field and a forum to discuss future repairer needs as they arise.

Collectively, we recognize the importance of providing a wide range of repair options to meet the needs of our shared customers throughout the lifecycle of a vehicle. This renewed commitment should give policymakers full confidence that repairers and manufacturers are committed to cooperation and allied on this shared goal.

Sincerely,

Julie Massaro
President
Automotive Service Association

Aaron Schulenburg
Executive Director
Society of Collision Repair Specialists

John Bozzella
President and CEO
Alliance for Automotive Innovation

Cc: The Honorable Ann Carlson, Acting Administrator, National Highway Traffic Safety Administration
The Honorable Lina Khan, Chair, Federal Trade Commission
The Honorable Earl L. "Buddy" Carter (R-GA), Vehicle Data Access Caucus
The Honorable Darren Soto (D-FL), Vehicle Data Access Caucus

Enclosure: Appendix 1 – Commitment on Automotive Repair Information Sharing

Appendix 1

Automotive Repair Data Sharing Commitment

This commitment was created with one group of people in mind: vehicle owners. It recognizes and reaffirms the belief that consumers should have access to safe and proper repairs throughout a vehicle's lifecycle.

The parties commit to ensure consumer choice in vehicle repair decisions and support the independent repair community as provided below and as outlined in the existing 2014 Memorandum of Understanding:

Access to diagnostic and repair information – There shall be available for purchase by owners of motor vehicles and by independent repair facilities on fair and reasonable terms the same diagnostic and repair information, including service manuals and technical repair updates, that a manufacturer makes available to its authorized dealers through the manufacturer's internet-based diagnostic and repair information system or other electronically accessible repair information system.

Access to vehicle systems – There shall be available access to vehicle diagnostic systems though (i) a non-proprietary vehicle interface device that complies with the Society of Automotive Engineers standard J2534, commonly referred to as SAE J2534, the International Organization for Standardization standard 22900, commonly referred to as ISO 22900 or any successor to SAE J2534 or ISO 22900 as may be accepted or published by the Society of Automotive Engineers or the International Organization for Standardization; (ii) an onboard diagnostic and repair data system integrated and entirely self-contained within the vehicle, including, but not limited to, diagnostic or service information systems integrated into an onboard display; or (iii) a system that provides direct access to onboard diagnostic and repair data through a non-proprietary vehicle interface, such as ethernet, universal serial bus or digital versatile disc; provided that each manufacturer provides access to the same onboard diagnostic and repair data and functions available to their dealers, including technical updates to such onboard systems, through such non-proprietary interfaces as referenced in this paragraph.

Alternate Fueled Vehicles – Just as is the case for traditional internal combustion vehicles, access to vehicle diagnostic data and to vehicle systems for diagnostic and repair purposes shall be available for purchase by vehicle owners and by independent repair facilities on fair and reasonable terms for alternately fueled vehicles. This commitment applies to all vehicle technologies regardless of powertrain, including gasoline, diesel, fuel cell, electric battery, hybrid, and plug-in hybrid electric powertrains.

Telematics – Telematics systems shall not be used to circumvent the commitments made in this commitment to provide independent repair facilities with access to vehicle diagnostic data. To the extent that specific telematic diagnostic and repair data is needed to complete a repair, and also provided to an automaker's authorized dealers, the automaker shall make such information available to vehicle owners and independent repair facilities, if it is not otherwise available through a tool or third-party service information provider. This does not apply to any telematics data beyond what is necessary to diagnose and repair a vehicle.

Access to tools – There shall be made available for purchase by owners of motor vehicles and by independent repair facilities diagnostic repair tools incorporating the same functional capabilities that a manufacturer makes available to its authorized dealers.

Fair and Reasonable Terms – There shall be access to diagnostic and repair information and tools on fair and reasonable terms, consistent with U.S. Environmental Protection Agency, California Air Resources Board, and Massachusetts statutory requirements.

Support of Third-Party Tool Manufacturers–Diagnostic and repair information shall be made available to each third-party tool manufacturer and each third-party service information provider with whom a manufacturer has appropriate licensing, contractual, or confidentiality commitment for the sole purpose of building diagnostic tools and third-party service information publications and systems.

Trade secret protections – Nothing in this commitment shall be construed to require a manufacturer to divulge a trade secret.

Education – The parties shall develop a plan to educate both mechanical and collision repair facilities on the avenues by which they can access repair information, including directly through manufacturer repair websites, on www.oem1stop.com, or by accessing third-party tool and data service providers, among others.

Training – The parties shall review existing training options for both mechanical and collision repair facilities and work to ensure repairers have access to the latest training opportunities.

Working Together to Address Any Identified Gaps

As a complement to the existing process for resolving disputes involving the availability of diagnostic and repair information from specific manufacturers established in the 2014 MOU, the parties commit to establish a Vehicle Data Access Panel (VDAP) to identify issues a party may have with respect to the availability of diagnostic data and repair information as pledged in this commitment and collaborate on potential solutions where feasible. The VDAP shall be comprised of representatives from Automotive Service Association, Society of Collision Repair Specialists and Alliance for Automotive Innovation, and shall meet, at a minimum, biannually.

Periodic Review to Ensure Continued Relevancy

In recognition of this industry's dynamic marketplace, the parties commit to review this commitment annually and update, if appropriate. To that end, the parties shall establish a Data Access Working Group to consider any technological advancements that may alter the vehicle repair marketplace. The size and membership of this Working Group shall be established by the parties and can be altered at any time with the commitment of the signing parties.

Cooperation and Advocacy

Federal legislation – The parties commit to working together in support of federal legislation to codify the various provisions of this commitment, ensuring consumer choice in vehicle repair across the country. The parties also commit to working together against any legislation that is in direct conflict with the tenets of this document.

Federal regulations – The parties commit to working together in support of a petition to the Environmental Protection Agency to ensure repairability of electric vehicles by requiring standardized data communication protocols from OBDII-type connectors on all battery electric, plug-in hybrid, hybrid, and fuel cell vehicles model year 2026 and beyond in alignment with California's Advanced Clean Cars II regulation.

State legislation – The parties commit to working together against any legislation that is in conflict with the tenets of this commitment. Engagement on state legislation not in conflict with the tenets of this commitment shall be evaluated on its merits and subject to the commitment of the parties.

Signing Parties

Automotive Service Association (ASA)
ASA is the largest and oldest national organization committed to protecting the automotive repair industry with ONE VOICE. Our members own and operate automotive mechanical and collision repair facilities responsible for the majority of all, post warranty, repair services in the United States. ASA advocates for the interests of its members and their customers in Washington, D.C. The education, resources, and services ASA provides empowers its members in all 50 states to remain trusted stewards of mobility in their communities. www.ASAShop.org

Society of Collision Repair Specialists (SCRS)
Through our direct members and affiliate associations, SCRS proudly represents over 6,000 collision repair businesses and 58,500 specialized professionals who work to repair collision-damaged vehicles. Since 1982, SCRS has served as the largest national trade association solely dedicated to the hardworking collision repair facilities across North America. Since its formation, SCRS has provided repairers with an audible voice, and an extensive grassroots network of industry professionals who strive to better our trade. Additional information about SCRS including other news releases is available at the SCRS website. www.scrs.com

Alliance for Automotive Innovation

From the manufacturers producing most vehicles sold in the U.S. to autonomous vehicle innovators to equipment suppliers, battery producers and semiconductor makers – Alliance for Automotive Innovation represents the full auto industry, a sector supporting 10 million American jobs and five percent of the economy. Active in Washington, D.C. and all 50 states, the association is committed to a cleaner, safer and smarter personal transportation future. www.autosinnovate.org

Effective Date

This Commitment is effective immediately upon signed letter transmittal to Chairwoman Cantwell, Ranking Member Cruz, Chairwoman McMorris Rodgers, Ranking Member Pallone, Chairman Jordan, Ranking Member Nadler, Chairman Durbin, and Ranking Member Graham.

Mr. ISSA. Thank you.
Mr. Roberts.

STATEMENT OF PAUL ROBERTS

Mr. ROBERTS. Chair Issa, Ranking Member Johnson, and Subcommittee Members, my name is Paul Roberts and I'm the founder of Secure Repairs. We're an organization of more than 350 cybersecurity and information technology professionals who support the right to repair.

I'm speaking to you today on behalf of our members to make clear that fair access to repair materials sought by right-to-repair laws does not increase cyber risk, and, in fact, it can contribute to a healthier and more secure ecosystem of smart and connected devices.

Proposed right-to-repair legislation considered by this Congress, such as the REPAIR Act or, last session, the Fair Repair Act, simply ask manufacturers that already provide repair information and tools to their authorized repair providers to also provide them at a fair and reasonable price to the owners of the devices and to third parties that they may wish to hire to do the work.

By definition, the information covered by right-to-repair laws is not sensitive or protected, as evidenced by the fact that the manufacturers already distribute it widely to hundreds, thousands, or even tens of thousands of workers for their authorized repair providers. This could be everyone from mechanics working at auto dealerships to the folks staffing the Geek Squad at Best Buy.

Also, we have yet to find any evidence that the types of information covered by right-to-repair laws, like schematic diagrams, service manuals, diagnostic software, and replacement parts, act as a portal to cyberattacks. The vast majority of attacks on internet-connected devices, from broadband routers, home appliances, and to automobiles, today exploit weaknesses in the embedded software produced and distributed by the manufacturers or, alternatively, weak device configuration. So, they're deployed on the internet in ways that make them vulnerable to attack.

These security weaknesses are an epidemic. A recent study of the security of the Internet of Things devices by the company Phosphorus Labs—they're a cybersecurity company—found that 68 percent of Internet of Things devices contained high-risk or critical software vulnerabilities.

As an example, I'd like to call attention to the work of a group of independent researchers recently, led by Sam Curry, who published a report—and you can Google this—*Web Hackers* v. *The Auto Industry*. In January 2023, that group disclosed wide-ranging and exploitable flaws in vehicle telematic systems from 16 different auto manufacturers. At a leading GPS supplier to major automakers, the researchers claimed to have obtained full access to a companywide administration panel that gave them the ability to send arbitrary commands to an estimated 15.5 million vehicles, including vehicles used by first responders—police, fire, and so on.

Hacks like this take place without any access to repair materials, nor is there any evidence that providing access to repair software will open the doors to new attacks. As an example, a diagnostic routine that identifies a failed component or reveals the operating

temperature of a device doesn't provide access to the kinds of sensitive data that hackers are interested in.

We're experiencing today an epidemic of insecure, hackable internet-connected devices. In response to that, we really need a reset. For the last 25 years, Section 1201 of the Digital Millennium Copyright Act has given manufacturers an incentive to deploy software locks widely and to limit access to security researchers.

That's kind of a model, what we call in cybersecurity, security through obscurity. In other words, by keeping the workings of something secret, you're making it secure. In fact, that doesn't work because cyber criminals are very resourceful and they're very determined, and they don't really care what the law says.

Section 1201 has also enabled what one researcher has described as "dark patterns" in the design and manufacture of hardware. That includes everything from locking out customers from access to administrative interfaces, administrative features of the products that they own, as well as practices like "part pairing," which I will talk to you more about, in which manufacturers couple replaceable components, like screens and sensors and cameras, to specific device hardware. Such schemes make manufacturers and their authorized repair providers gatekeepers for repairs and, effectively, bar competition from the owners of the devices, as well as independent repair providers.

As the Internet of Things ages, and manufacturers gradually step away from their responsibility to support and maintain deployed products—for example, by providing software updates and security patches—reforms to Section 1201 and the passage of right-to-repair laws can nurture a market-based response, a diverse ecosystem of small, after-market service providers that will step into the shoes of OEMs, supplying needed software updates and security patches, and servicing and repairing deployed devices. Such policy changes will also foster a range of business and employment opportunities up and down the economic ladder.

To sum up, Federal right-to-repair legislation, like the REPAIR Act and the Fair Repair Act, will greatly improve the quality of life for consumers, families, and communities, while promoting small business and reducing e-waste throughout the country.

On behalf of our more than 350 members, I urge this Committee to support the passage of right-to-repair legislation and reforms to Section 1201 of the DMCA, and I'm happy to answer any questions that you may have.

[The prepared statement of Mr. Roberts follows:]

Paul Roberts
Founder
—

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July 14, 2023

Chair Darrell Issa, Ranking Member Hank Johnson, and Honorable Members of the Subcommittee on Courts, Intellectual Property, and the Internet of the Committee on the Judiciary
Congress of the United States
House of Representatives
2138 Rayburn House Office Building
Washington, DC 20515-6216

Chair Issa, Ranking Member Johnson, and members of the Subcommittee on Courts, Intellectual Property, and the Internet:

My name is Paul Roberts and I am the founder of Secure Repairs (securepairs.org), an organization of more than 350 cyber security and information technology professionals who support the right to repair. I am speaking to you today on behalf of our members to make clear that the fair access to repair materials, such as those required under right to repair laws, *does not increase cyber risk*. In fact, it can contribute to healthier and more secure ecosystems of smart, connected devices.

About me: I have covered the cybersecurity space for more than 20 years as a reporter, editor and industry analyst. Since 2012, I have served as the publisher and Editor in Chief of The Security Ledger (securityledger.com), an independent cybersecurity news website that covers the intersection of cybersecurity and the Internet of Things. I am the Cyber Content Lead at ReversingLabs, a provider of cloud-based intelligence on malware and software supply chain risks, and I sit on the board of The Repair Coalition. My writing and reporting on cybersecurity has appeared in publications including Forbes, The Christian Science Monitor, MIT Technology Review, The Economist Intelligence Unit, CIO Magazine, ZDNet and Fortune Small Business. I have appeared on NPR's Marketplace Tech Report, KPCC AirTalk, Fox News Tech Take and Al Jazeera.

Secure Repairs (securepairs.org) includes some of the nation's leading corporate executives, academics, security researchers and information security professionals. We ardently support a robust, open repair ecosystem and wish to dispel myths, propagated by those opposed to this important consumer right, that access to repair information and tools somehow poses a cyber risk. It does not.

No Cyber Risk In Repair

At its core, proposed right to repair legislation considered by this Congress such as the REPAIR Act simply asks manufacturers of devices that already provide repair and maintenance information to their *authorized* repair providers to also provide them at a fair and reasonable price to their *customers* - the owners of the devices - and to third parties those customers may hire to do repair and maintenance for them.

By definition, the information covered by right to repair laws is not sensitive or protected, as evidenced by the fact that manufacturers distribute it widely to hundreds, thousands or tens of thousands of repair professionals working on behalf of their authorized providers. That includes everything from auto mechanics working at dealerships to hourly workers staffing the Geek Squad at Best Buy. To say that we will increase cyber risk by also providing that information and tools to the owners of devices or independent repair professionals defies explanation.

Independent repair is just as secure as authorized repair

In opposing right to repair laws, manufacturers also like to lean on the notion that authorized repair providers are more reliable and cyber secure than independent repair providers. This committee should understand that there is no evidence to support these claims.

Ahead of its 2021 Nixing the Fix report to Congress, the FTC explicitly asked manufacturers to provide empirical evidence that authorized repairs were of higher quality or employed superior cybersecurity than independent repair. Manufacturers were unable to provide any such evidence to the FTC. Accordingly, the Commission concluded in its report that there was *no empirical data* that supports manufacturers' claims that authorized repair is safer or of higher quality than independent repair.

Hacked via schematics? Not a thing.

It is also important to understand that, from the perspective of cyber risk, the kinds of information covered by right to repair laws plays no role in fueling cyber attacks on connected devices. The vast majority of attacks on Internet connected devices - from smartphones and tablets to home appliances and automobiles - exploit software vulnerabilities in embedded software produced, managed and released by the manufacturer.

In addition, hackers exploit weak configurations, like default administrative usernames and passwords configured by manufacturers that are common to devices and never changed, or wide-open and insecure communications ports designed to facilitate deployment and remote management of devices, but that give remote hackers access to administrative interfaces and stored data.

Examples of this kind of attack grab headlines almost daily. The recent spate of attacks on the MOVEIt file transfer application are a good example. Those attacks, carried out by the Cl0p ransomware gang, leveraged a remotely exploitable hole in the MOVEIt application software to get access to sensitive data stored on the application. The MOVEIt attacks have affected more than 200 organizations and 17.5 million individuals, according to estimates, including a long list of U.S. colleges and universities, healthcare, financial pharmaceutical and energy firms and more.

And malicious actors have no shortage of potential targets to choose from in the U.S. A recent study of the security of IoT devices by Phosphorus Labs, a cybersecurity company, found that **68% of devices studied contained known, high-risk or critical software vulnerabilities**. That's consistent with a 2020 study by Palo Alto Networks that found that 57% of IoT devices are vulnerable to medium- or high-severity attacks while 98% of all IoT device traffic is unencrypted, exposing personal and

confidential data and allowing attackers the ability to listen to unencrypted network traffic and collect personal or confidential information.

In short, it is the poor quality of deployed software and the poor state of device security - not the availability of diagnostic and repair tools and information - that fuels cyber attacks on connected devices. As someone who has covered the cybersecurity space for more than two decades, I can say with assurance that hackers are not scrutinizing schematic diagrams, reading through service manuals or using diagnostic software designed to service and repair devices to facilitate their attacks. Shoddy and insecure software and poorly configured devices leave the doors to our home, business and government networks and data wide open. Hackers simply step through those open doors.

A Right to Repair is key to a secure Internet of Things

In fact, properly implemented, right to repair laws will promote a healthier and more secure ecosystem of smart, connected devices, rather than undermine it. As the Internet of Things ages, individuals, businesses and governments will find they have to maintain deployed devices after manufacturers have ended support for them. The problem of "abandonware" is already evident and growing, as the makers of connected devices walk away from the responsibility to support the software that powers their creations, leaving U.S. businesses and consumers in the lurch.

There are many reasons for abandoning support of smart, connected devices - from the typical considerations of resources and profitability to manufacturers going out of business or being acquired. While it may be impossible to force companies to support connected products for the two, three or four decades that are their full, useful life, we can empower the larger economy to pick up where manufacturers leave off. Right to repair laws will foster a diverse ecosystem of small, aftermarket service providers that can step into the role once occupied by OEMs to supply software updates and patches, service and repair deployed devices and so on. Right to repair laws help ensure that devices will have long and productive lives, reducing the total cost of ownership for businesses and consumers and the amount of electronic waste they produce. At the same time, these laws will foster a range of business and employment opportunities up and down the economic ladder.

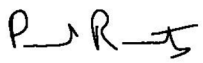
Repair: Pro-Consumer, Pro-Competition, Pro-Environment

In a world that is increasingly populated by Internet-connected, software powered objects - the so-called "Internet of Things" - a right to repair is a vital tool that will extend the lives of consumer devices and ensure their safety, security and integrity. Yes, modern electronics have many new, wonderful software-based features. We all want and benefit from the conveniences offered by such "smart," connected products. But the price of convenience, connectivity and cool features cannot be manufacturer monopolies on service and repair. These deny your constituents property rights they have enjoyed for centuries, while imposing considerable costs on our families, small businesses and communities.

Federal right to repair legislation like the REPAIR Act, the SMART Act and the Fair Repair Act will greatly improve the quality of life for consumers, families, and communities, while promoting small businesses and reducing e-waste throughout

the country. Such legislation is a long overdue corrective to abusive and anti-competitive industry practices. On behalf of our more than 300 members, I strongly urge this committee to support the passage of right to repair legislation.

Sincerely,



Paul Roberts | paul@securepairs.org

Mr. ISSA. Thank you.
Mr. Wiens?

STATEMENT OF KYLE WIENS

Mr. WIENS. Thank you, Chair, Ranking Member, and—
Mr. ISSA. Your microphone may need a little more help.
Mr. WIENS. I fixed it.
[Laughter.]
Thank you, Chair.
Mr. ISSA. So, quickly.
[Laughter.]
Mr. WIENS. I can do this.

I did a workshop with EPA, and I took their microphone apart for them. So, I'm accustomed to these things.

Mr. ISSA. With all due respect, normally, Mr. Massie is here to take care of that for all of us.

[Laughter.]

Mr. WIENS. Appreciate it. Thank you so much for having me. It's an incredible honorable.

I have been working on this issue really since high school. I was working at an authorized repair shop. I was working, making $6.50 an hour. The entire time I was in high school, I saved up for a computer for college. I bought this iBook for $1,850, took it to college, and, of course, the first thing I did was dropped it on the power plug. It was just devastating. It was my access to doing my schoolwork.

So, my grandfather had given me a soldering iron when I went to school. He thought I was studying computer science and I would need the soldering iron. That's not what we do; we type on keyboards.

I figured I could take it apart and just fix the cracked solder joint. So, I started trying to take the computer apart, and I realized very quickly that I was in over my head. There were cables and wires all over the place. I was like this is going to be an incredible pain.

So, I did what I think anyone would do, and I Googled for how to open the computer. I knew what the service manuals looked like. I could not find the service manual anywhere.

So, I bumbled my way through the repair. I got the whole computer apart, and then, the biggest mistake that I made was I went to sleep and figured I'll put the computer back together in the morning. Without a service manual, I managed to barely do it, but it was really hard.

Afterwards, I was asking myself, why was this so difficult? I did a little more research and I learned that the service manual had been online, but Apple had sent DMCA takedowns to every single website that hosted the manual.

So, the manufacturers are using legal avenues to stymy repair. That was really the window of opportunity. Wow, this really is a challenge. So, ever since then, I've been fighting to open up access.

I took the computer apart again. I took pictures. I wrote my own manual. We published it online and it's been very popular. Last year, 1 in 10 Americans used *iFixit* to learn how to fix something,

whether it's a cell phone or a car or a skateboard. We help people fix a wide variety of products.

That's really important because we have to have a resilient alternative ecosystem for repair. You think about, what is local—what is American Main Street? You have, you have a post office and a repair shop. Unfortunately, we've seen the whittling down of Main Street, as the TV repair shops went away when the manufacturers cutoff access to the schematics; as the camera repair shops went away when Nikon and Canon decided to stop selling them parts. We've seen this systematically across the economy.

In the enterprise space, you have Oracle and IBM saying that you can't get security updates to critical cyber infrastructure unless you buy a service contract with them. So, they're tying long-term service contracts with the security updates that are necessary to keep this infrastructure secure.

Across the industry, we've been working on right-to-repair legislation in a number of States in the last couple of years. Massachusetts passed auto right to repair. Colorado passed electric wheelchair and tractor right to repair. We passed a broad, sweeping consumer electronics right to repair in New York, and then, Minnesota took it one step further, adding enterprise electronics and appliances. So, you're seeing this spread across the country. California has a bill that is poised to pass very soon.

As we've advanced legislation, we've heard a lot of objections from manufacturers. Apple claims that—they've told legislators that if they could fix their iPhones, they'll hurt themselves with the batteries.

John Deere doesn't really seem to care about the safety of farmers. They say that's not a concern, fixing tractors, but farmers will screw up the emission systems on the vehicles, if they mess with them.

The car manufacturers don't really seem worried about the emission systems on vehicles. They think independent mechanics can do that just fine, but that mechanics will stalk their victims; they will stalk their customers—sorry—if they have access to telematics data.

The medical device manufacturers don't really seem to care about the privacy of patients, but they're concerned that the hospitals, if they can repair their own equipment, will harm patients. I take that one personally because, during the pandemic, the hospital biomed technicians were instrumental in keeping the fleet of ventilators in this country functional and working.

Over the last decade-plus, I've been working on Section 1201, trying to get exemptions for the ability to repair products. The challenge that we've had in the Section 1202 process—every triennial I go back, and we ask for permission to be able to fix our own things—is that the exemptions we've gotten really only apply to individual consumers. They aren't something that I could use to make a tool to provide one of you to fix yourself. So, for someone to take advantage of the 1201 exemption that we have, they have to be a cybersecurity researcher and able to whittle their own tools and use it themselves, and that just doesn't scale.

So, across the board, across the issues, we're seeing solutions rolling out, but the fix that is incumbent on Congress really, at this point, 1201 has to be solved here; it can't be solved anywhere else.

Thank you very much.

[The prepared statement of Mr. Wiens follows:]

IFIXIT

Barriers to Repair:

iFixit Evidence for the House Judiciary Right to Repair Hearing

July 14, 2023

Executive Summary

Not long ago, repair was most Americans' default course of action when something failed: Repair shops abounded, appliances came with circuit schematics and parts catalogs, and you could open most things with a common screwdriver. But **our things have become increasingly difficult to open and service**. Parts have become scarce. Software has begun to restrict access to repair. Too often, people assume these changes are a technological necessity. Manufacturers lean on the fiction that computational complexity requires them to restrict repair to their own services.

On the contrary, the increasing difficulty of repair is a deliberate manipulation of the market. There has been a **massive, multi-industry push by large corporations to develop and maintain a monopoly on repair**—with similar strategies evident in agriculture, consumer technology, appliances, vehicles, and medical devices. Repair is, for many manufacturers, a big business. Keeping repair in-house lets them tie repair service to product sales and push consumers to replace instead of repair whenever possible. Anticompetitive repair restrictions on parts, tools, diagnostics, and software funnel consumers to manufacturer-authorized service centers. At these centers, repair prices are often deliberately set right at the point where research finds customers will decide instead to buy new. Repair restrictions thus **hurt independent businesses, cost consumers money by driving up the cost of repair, and result in unnecessary toxic waste** when electronics end up in landfills.

The effort to remove these restrictions on repair is called **the Right to Repair movement**. Right to Repair laws have been introduced in 45 states, and six state Right to Repair bills have passed:

- Massachusetts passed the Automotive Right to Repair Act via direct ballot in 2012.
- Massachusetts passed the Vehicle Data Access Requirement ballot initiative in 2020.
- Colorado passed the Consumer Right to Repair Powered Wheelchairs Act in June 2022.
- New York passed the Digital Fair Repair Act covering consumer electronics, also in June 2022. It applies to new products made after July 1, 2023 and goes into effect January 1, 2024.
- Colorado expanded their Right to Repair statute to include agricultural equipment In April, 2023.
- Minnesota passed the broader Digital Fair Repair Act that covers appliances, consumer electronics, and enterprise technology in March, 2023. It is retroactive to products made after July 1, 2021.

Federal interest in Right to Repair has also grown. In 2021, President Biden signed an executive order promoting competition, encouraging the FTC to establish rules supporting the right to independent and DIY repair. The FTC conducted an investigation and concluded in mid-2021 that there is significant evidence of repair restrictions and "no substantial evidence" supporting manufacturers' counterarguments.

In the 2021-22 session, repair was the subject of **five Federal Congressional bills**, many of which were bipartisan.[1] These bills addressed a wide range of product categories, including general consumer electronics, agricultural equipment, and automobiles. They addressed repair restrictions in the form of enabling access to parts and tools (Fair Repair Act, Agricultural Right to Repair Act), ensuring the availability of necessary data and software (REPAIR Act, Agricultural Right to Repair Act), and removing copyright restrictions that unfairly limit repair (Freedom to Repair Act).

The House Committee on Small Business Subcommittee on Underserved, Agricultural, and Rural Business Development held a hearing called "Right to Repair and What it Means for Entrepreneurs" on September 14, 2022.[2]

In 2023, Congressman Neal Dunn reintroduced the REPAIR act, ensuring that automobile owners have access to the data they need to complete repairs.[3] We anticipate that at least a couple of the other Right to Repair bills from the last Congress will be reintroduced.

We call on Congress to take action in support of Right to Repair by learning about the impact of repair restrictions on consumers and small repair businesses, by passing the bill before them, and by introducing and cosponsoring further legislation on this issue.

Most legislation has been focused on requiring manufacturers make tools available to independent repairers. A free market alternative would be to foster a marketplace of competitive tools that provide alternatives to manufacturer repair solutions. Unfortunately, those tools are currently illegal under Section 1201 of the DMCA.

It is **especially crucial that Congress address the copyright restrictions** preventing repair tools (covered last Congress by the Jones-Spartz House Freedom to Repair Act), as these restrictions can only be lifted at the Federal level.

Through iFixit's position—offering a free open-source online repair manual and working with independent repair businesses—we have encountered **evidence of a wide variety of repair restrictions**. In this document, we enumerate those restrictions, record the evidence we've gathered, and share the rationale for our support of Right to Repair legislation.

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[1] The House Fair Repair Act (Khanna, Norton, Meng, Panetta, Bonamici, Porter, Malinowski);

the House Freedom to Repair Act (Jones, Spartz, Porter, Stansbury, DeGette);

the House REPAIR Act (Rush, Davidson, Jones, Dunn, Reed, Boyle, Thompson, Evans);

the Senate Fair Repair Act (Lujan, Lummis, Wyden); and

the Senate Agricultural Right to Repair Act (Tester)

[2] https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventId=115093

[3] https://dunn.house.gov/press-releases?id=433DA033-E6FE-4088-9A40-9F078A10717D

iFixit's 75 Million Users Encounter Repair Restrictions

iFixit is an international, open-source, online **repair manual for everything**. Our mission is to provide people with the knowledge they need to make their things work for as long as possible.

We represent a global community of makers, tinkerers, fixers, and repair professionals. In 2022, the iFixit community taught repair to over 75 million people from almost every country in the world. The strongly collaborative group has published over 90,000 repair guides. This massive, free resource has helped people fix **everything from cellphones and game consoles to tractors and wheelchairs**.

Many people who come to iFixit are looking to fix something themselves because repairing it at home is cheaper, more secure, and more convenient than other possibilities. Some live hours away from manufacturer repair options. Others have visited manufacturers' repair centers and been told their device was unrepairable, or that repair would cost nearly as much as a new device. Often **our users are able to prove the manufacturers wrong** by repairing their things affordably.

iFixit also supports independent repair businesses, as well as IT departments at schools and government agencies, by providing free repair documentation and offering wholesale parts and tools. The owners of these businesses frequently describe how manufacturers' repair restrictions hamper their ability to compete in the marketplace. They often cannot get reliable parts or the tools they need to complete repairs consistently.

Increasingly, both individuals and independent repair businesses encounter repair restrictions even after installing a new part: Manufacturers have begun to pair parts via serial number with other parts, which means that error-free repairs require the use of pairing software that manufacturers keep proprietary. We hear from repair business owners about **stacks of broken devices piled in their back rooms**, unrepairable only because of these software limitations.

For our members—and American consumers more generally—the problems of being unable to repair their things are vast and will continue to grow, unless legislators **introduce common sense regulation to restore competition in the repair market.**

A Brief History of Right to Repair

Local shops are the place to take your car for most fixes. That's largely due to the foundational laws of the Right to Repair movement: the Clean Air Act Amendments of 1990 and the Motor Vehicle Owners' Right to Repair Act of 2012.

The 1990 Amendments demanded that every US car be able to monitor its own emissions by 1996. In order to do that, repair shops needed a standardized way to interface with the car's monitors. Thus was born the OBD-II port, which ensured that you don't have to pay a ransom to the dealer for every Check Engine light.

But cars continued to get more complicated, and companies more secretive, after 1996. Massachusetts residents responded by voting in a repair-minded ballot initiative in 2012. After that, the major trade groups representing car makers (except Tesla) agreed to incorporate the initiative as a national standard, rather than wait for a patchwork of state bills to follow. Now

repair shops can access the same diagnostic tools and data as dealerships, beyond just the OBD-II port. Before this legislation and the more even playing field it created, car makers had an incentive to exaggerate the danger or uncertainty of “unapproved” repairs.

In early 2012, Nikon sent a letter to their independent service network. Nikon flatly stated that they would no longer supply repair parts to anyone—except 23 Nikon authorized repair facilities. In one fell swoop, Nikon secured for itself an absolute monopoly over the repair of their products. And it put thousands of qualified, established camera repair technicians out of business.

In January of 2013, invoking Section 1201 of the DMCA, at the recommendation of the Copyright Office, the Librarian of Congress effectively banned unlocking cellphones without the permission of the carrier. His reasoning: that modifying a phone's programming was a violation of US copyright law. The effect: cellphone refurbishers wouldn't be able unlock cell phones for reuse. Members of this coalition banded together with other advocates and fought to re-legalize cell phone unlocking. On August 1, 2014, President Obama signed unlocking legislation—ensuring that both consumers and refurbishers would be able to unlock phones.

States began introducing electronics Right to Repair legislation authored by Repair.org in 2014. Starting in South Dakota, forty-five states have introduced a variety of measures to restore competition in the repair marketplace. So far, four states have passed Right to Repair legislation:

Massachusetts	**Motor Vehicle Owners’ Right to Repair Act (2012)** Massachusetts voters overwhelmingly passed the nation’s first Right to Repair law, focused on automobiles, in 2012. The ballot initiative passed with 87.7% of the vote, or 2.4 million votes, and it required automobile manufacturers to make non-proprietary diagnostic and safety information available to consumers and independent repair shops. After the bill passed, automotive manufacturers worked with the Auto Care Association to extend those same protections across the country via a memorandum of understanding, as long as advocates promised not to push for any more automotive state Right to Repair bills.
	Right to Repair Vehicle Data Access Requirement Initiative (2020) The 2014 memorandum of understanding between the Auto Care Association and automotive manufacturers explicitly excluded telematics data—the systems cars use to track fuel consumption and braking, among other things. But in today’s increasingly connected vehicles, diagnostic information is more and more often passed via telematics systems. So Massachusetts voters overwhelmingly passed another initiative that would require manufacturers to provide telematics data, too. Automakers immediately sued to stop the implementation of the law, but in March 2023, Massachusetts Attorney General Andrea Joy Campbell said she will begin to enforce it despite the ongoing lawsuit.

Colorado	**Wheelchair Right to Repair (2022)** In 2022, Colorado passed HB22-1031, Consumer Right to Repair Powered Wheelchairs. The bill gave wheelchair users and independent repair technicians access to the same repair parts, tools, and documentation that manufacturers' authorized technicians have. Within days of its enactment, Coloradans were making use of their new freedoms, getting access to chair-adjusting software that they'd previously been denied.
	Agricultural Right to Repair (2023) Colorado passed the first-ever agricultural Right to Repair protection in 2023: HB23-1011, Consumer Right to Repair Agricultural Equipment. Like the powered wheelchair bill passed the year before, it protected consumers' and independent technicians' access to the same parts, tools, and documentation as manufacturers' authorized technicians. When the bill goes into effect on January 1, 2025, it will bust a decades-old repair monopoly on farm equipment—a monopoly that Americans have paid for via higher food prices.
New York	**Electronics Right to Repair (2022)** New York's electronics Right to Repair bill, S4104-A/A7006-B, passed the state legislature in June 2022 with strong consumer protection—but by the time the governor signed it in December 2022, it had been weakened significantly due to manufacturer lobbying efforts. For example, it excluded enterprise IT equipment. Manufacturers are also allowed to combine inexpensive components into large assemblies, which can price repair out of reach for many consumers. They are also not required to license their intellectual property, which may mean that they can continue to block repair via software parts pairing (depending on how the state attorney general interprets the law). Still, the bill will require manufacturers to make some parts, tools, and documentation available.
Minnesota	**Digital & Appliance Right to Repair (2023)** Minnesota passed broad Right to Repair reforms as part of an omnibus bill in 2023, covering all electronics, with only a small handful of exceptions (farm equipment, video game consoles, specialized cybersecurity tools, motor vehicles, and medical devices). Otherwise, everything with a chip is covered, from smartphones and laptops to appliances and networking equipment. Manufacturers of all these products will be required to provide owners and independent repair shops with the same parts, tools, and documentation that they provide their authorized repair providers. The law goes into effect on July 1, 2024, and applies to anything produced after July 1, 2021.

Bipartisan FTC Investigation and Action in Support of Repair

In May 2021, the Federal Trade Commission released the unanimous, bipartisan "Nixing the Fix: An FTC Report to Congress on Repair Restrictions," which describes their three-year investigation of barriers to repair across industries, potential legislative and regulatory fixes, and arguments made on both sides of the Right to Repair debate. The report grounds itself in discussion of the Magnuson-Moss Warranty Act's Section 102(c), the anti-tying provision, which prohibits manufacturers from conditioning a warranty on consumers using only manufacturer-provided parts or service. The report concludes:

> Based on the record before us, it is clear that repair restrictions have diluted the effectiveness of Section 102(c) and steered consumers into manufacturers' repair networks or to replace products before the end of their useful lives. Based on a review of comments submitted and materials presented during the Workshop, **there is scant evidence to support manufacturers' justifications for repair restrictions**. Moreover, the specific changes that repair advocates seek to address manufacturer repair restrictions (e.g., access to information, manuals, spare parts, and tools) are well supported by comments submitted for the record and testimony provided at the Workshop.

Following this report, the FTC has ramped up enforcement, worked with state legislators to develop more-effective Right to Repair legislation, and in 2023 sent its Chief Counsel for Development and Innovation, Dan Salsburg, to testify in front of the California legislature.

More Repair Would Make America Better

We need to make our products last longer—doing so will create jobs, reduce waste, and help keep expertise onshore and local.

We're using too many resources to make short-lived electronic products. Unsustainable mining practices ravage the environment. Electronic waste ends up in landfills and waste dumps around the world. Usable products and device components are scrapped instead of salvaged, fixed, and reused.

The material and human cost is significant. We can improve working conditions in factories, restrict mining companies from dumping toxic wastes, limit exports of electronic waste, and tighten enforcement of laws keeping electronics out of landfills. But that will not stem the tide of obsolete devices. It will treat the symptoms but do nothing for the cause of this crisis.

Making products last means optimizing not only for the first owner, but also the third, the fourth, and the fifth owner by encouraging informal reuse and repair.

Reuse is an Economic Growth Engine

The Bureau of Labor Statistics estimates there are 325,400 electronics and mobile equipment repair technicians (working in repair-related NAICS codes) in the US. Additionally, there are hundreds of thousands of service technicians in informal repair markets around the world—in places like Guangzhou and Shenzhen—that import used electronics from the US for repair and resale. They are able to perform repairs not possible in the US. These technicians are more skilled at the repairs because they have local manufacturing expertise and access to service

documentation and circuit schematics. Decriminalizing access to those schematics would open a pathway to domestic economic growth.

Repair jobs have been lost in many markets as product replacements (particularly consumer products) drop demand for repair. Fortunately, iFixit's community has collaboratively closed some gaps in the manufacturer's planned obsolescence strategy. Thousands of cell phone and tablet repair shops using iFixit repair guides have sprung up around the country in the last few years—representing tens of thousands of new jobs.

Environmental Benefits of Repair

Repairing and refurbishing electronics has tremendous potential to impact sustainability. A report by McKinsey & Company and the Ellen MacArthur Foundation[4] found that increasing reuse and refurbishment could reduce the production of emissions of mobile phones by 3 million tons of carbon dioxide. Currently, market experts estimate that only 15% of smartphones are recycled—the rest are either put in storage or thrown away. According to McKinsey, increased resale of refurbished cell phones alone could generate $9.4 billion USD in additional economic opportunity annually. If we don't facilitate that economic growth here at home, it will happen overseas.

The US electronics recycling industry is substantially funded by repair and resale. Electronics recyclers were a key driver behind passing the Unlocking Consumer Choice and Wireless Competition Act in 2014. On the surface, that bill was a modification to Section 1201 of the DMCA and had nothing to do with recycling. But recyclers are some of the largest volume repairers and exporters of smartphones in the country.

An Illinois Economic Activity survey[5] showed that repairing electronics creates 13 times as many jobs as recycling it. A growing contingent of electronics recycling facilities have sophisticated repair and refurbishment operations. Recyclers, thus, face the same problems that repairers do: They struggle with access to information, parts, and tools necessary to operate their refurbishment operations. But recyclers also face some unique challenges. For instance, they need information about where embedded batteries are located, because if lithium-ion batteries enter a shredder, they can start a facility fire. Unlike repairers, who can call a device's owner to bypass security locks that might impede repair, recyclers interested in refurbishing all too often encounter anti-theft cloud activation locks. These locks result in products getting shredded instead of repaired.

It's prohibitive to expect recyclers to pay each manufacturer for information, translate the documentation, and convert it into a standardized format for use in their content management systems. Recyclers, consumers and reuse centers alike need access to standardized service documentation at no charge for the complex electronic equipment they own.

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[4] McKinsey & Company. "Towards the Circular Economy: Economic and business rationale for an accelerated transition" Vol. 1. http://www.ellenmacarthurfoundation.org/business/reports/ce2012

[5] Illinois Department of Commerce and Economic Opportunity. "Electronics Recycling: Economic Opportunities and Environmental Impacts" http://www.illinoisbiz.biz/NR/rdonlyres/8DD41FE3-A7ED-4447-87C0-DD05815F2747/0/EwasteFactSheet.pdf

Guidelines on electronics reuse released in April, 2012 by respected engineering association VDI [6] found that it was “absolutely necessary” to adopt policies to support reuse of electronics. The study found that cannibalization of new product sales would not occur because “the markets of new products and reused products can be well differentiated from one another.” VDI also identified social opportunities for reuse: “An increasing number of companies offer work to disabled people by refurbishing electronic data processing technology.” For this reason, it is important that service information be made available in a blind/screen-reader friendly, standardized electronic format accessible to people with disabilities.

But there is insufficient research into interface, product, and systems designs that facilitate repair. It’s imperative that we strengthen repair infrastructures, institutions, and practices.

We’ve exported the manufacturing and engineering, but we’ve also inadvertently lost the knowledge to repair in the process. Technicians here don’t have the information they need to repair complex electronics. Every broken electronic that is exported without being repaired is a lost opportunity for job creation. It’s time to get that know-how back in America where it can create jobs.

Intellectual Property and the Right to Repair

Over the twenty-five years since the DMCA was passed, we’ve gone from a world where software is rarely seen outside of a general-purpose computer, to a world where billions of microprocessors are embedded in virtually every type of device. As a result, software has become central to the repair of devices.

Our physical objects aren’t just physical anymore. Code runs unseen through phones, watches, smoke alarms, and more. Without code, without software, our things become inert.

While this ushers in a whole new world of possibilities, it’s also redefining ownership. As these lines between physical and digital blur, it pits copyright and physical ownership rights against each other.

Manufacturers are, unfortunately, taking this opportunity to prevent users from repairing or modifying the devices they have bought, from tractors to printers to coffee makers.

Fixing Section 1201 of the DMCA

Section 1201 of the Digital Millennium Copyright Act makes it illegal to circumvent digital locks that control access to copyrighted content, such as DVD encryption, ebook and game DRM, and firmware with security protections. With software (and digital locks) embedded in virtually every type of device, Section 1201 effectively made it illegal to fix everything from game consoles to tractors to medical devices. The law is effectively double jeopardy: it’s already illegal to pirate software, but 1201 makes it illegal to break a lock to access the software.

What’s unique about the repair use case is that repairers need to bypass the lock, but generally have no need to duplicate the software. The need for reform Section 1201 is, at its heart, an effort

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[6] VDI. Dr. Ralf Brüning, et al. “Guidelines, electronic scrap recovery. ReUse of WEEE. VDI-2343 - Recycling of electrical and electronic equipment” http://bit.ly/1ceCVjq

to restore a critical aspect of consumer autonomy. Access to software tools and manuals for repair shouldn't be a high-stakes game of digital cat-and-mouse. When your repair is thwarted by a coded message on a digital screen, it's a chilling reminder that we're living in an age where companies can control our devices long after we've bought them.

Since 2015, iFixit has used the exemption process to fight for more freedom to fix. To get an exemption, every three years advocates and fixers participate in a laborious review process run by the US Copyright Office. If all goes well, the Register of Copyrights recommends and the Librarian of Congress grants temporary exemptions (which also have to be renewed every three years). In past review cycles we've won exemptions to let you fix your cars, tractors, smartphones, and home appliances, without fear of Section 1201's substantial civil and even criminal penalties.

In 2021, we argued that the Copyright Office should abandon its piecemeal approach of exempting very narrow subsets of device categories, and grant an exemption for the repair of all software-enabled devices. Whether you're fixing a toaster or a tablet, repairing isn't copyright infringement. They largely agreed, recommending exemptions for the purposes of "diagnosis, maintenance, and repair," of any "software-enabled device that is primarily designed for use by consumers," as well as repair of vehicles, marine vessels, and medical devices (including for accessing manuals and service information stored on the device!).

But the biggest problem is the lack of an exemption for repair tools: The rule does not allow you to distribute repair tools that circumvent manufacturers' digital locks. This is because without a change to the law, "The Librarian has no authority to adopt exemptions for the anti-trafficking prohibitions contained." So figuring out how to work around John Deere's tractor part-pairing tech is legal, but putting that code up on GitHub to freely share is illegal. Without access to shared tools, the exemptions are largely academic. Right now, if a farmer wanted to use this exemption to repair his tractor, they're going to have to whittle their own tractor unlocking app from scratch. That just doesn't scale—most farmers are not security engineers. The same is true of gamers who want to fix broken disc drives and McDonald's franchise owners who want to fix their broken ice cream machines: If we want a fix to 1201 that enables repair, we need repair tools to be legal also.

One proposed statutory fix was the Lofgren-Massie Unlocking Technology Act of 2015, which required a nexus to infringement to violate 1201. A more recent, narrower approach is the Freedom to Repair Act in the 117th Congress.

The Copyright Office has received extensive argumentation from both sides. The Entertainment Software Association and Advamed have opposed exemptions, suggesting that loosening copyright laws for repair would lead to rampant piracy—arguments we are accustomed to countering. In the 2021 rulemaking process, Morgan Reed, president of the App Association, suggested that if copyright holders can't (ab)use the DMCA to threaten hospitals and independent medical device repair technicians, patients will die, and entire regulatory systems will be undermined.

That would be news to the Food and Drug Administration (FDA), the agency that actually regulates medical devices. In 2018, the FDA published a report finding that repairs done by independent medical technicians are just as safe and effective as those by the manufacturer's

own technicians. Right on the first page of text, the FDA notes that third-party repair is “critical to the functioning of the U.S. healthcare system.”

The Copyright Office has generally loosened repair restrictions where it can, but it is running up against the limits of the statute. They released a report in 2017 recommending "expanding existing exemptions for security and encryption research and adding new provisions to allow circumvention for other purposes, such as the use of assistive reading technologies and the **repair of devices**."

Reason, a Libertarian magazine, wrote about manufacturer misuse of copyright in June 2018. Reason quotes Kit Walsh, attorney with the Electronic Frontier Foundation, on the clash between strict copyright restrictions on software and living with software all around us:

> “The list of products and technologies that are affected by this restriction is practically infinite because it’s anything that has software embedded in it,” says Walsh. “There’s a lingering hook that the seller has in your property that they are arguing gives them really broad powers to dictate how you use that property going forward.”

The Electronic Frontier Foundation published a report about the unintended consequences of Section 1201, concluding:

> “The “anti-circumvention” provisions of the Digital Millennium Copyright Act (“DMCA”), codified in section 1201 of the Copyright Act, have not been used as Congress envisioned. The law was ostensibly intended to stop copyright infringers from defeating anti-piracy protections added to copyrighted works. In practice, the anti-circumvention provisions have been used to stifle a wide array of legitimate activities. As a result, the DMCA has become a serious threat to important public policy priorities.”

Everyone, including the Copyright Office, knows that the exemption process is a volatile, unpredictable way to reclaim our rights to fix the things we bought and own. You shouldn’t need to consult an attorney to understand whether it’s legal to fix the disc drive on your Xbox, or have a repair professional work past the lockouts on your tractor.

The Supreme Court Repeatedly Upholds Ownership Rights

The Supreme Court has repeatedly ruled that reuse and repair do not infringe on a manufacturer’s rights.

Copyright: In Kirtsaeng v Wiley (2013), they affirmed that a copyrighted work (like a book or a software program embedded inside electronic equipment) can be resold.

That’s important, because this case could have had far-reaching implications on the legality of reselling *any* product made overseas... which is pretty much everything.

Over $2.3 trillion worth of foreign goods were imported in 2011 alone, SCOTUS reported. These days, everything—from cars to computers to cell phones—contains copyrighted materials. A ruling in favor of John Wiley & Sons could have made selling your iPhone on eBay or your Toyota on Craigslist illegal—a fact that influenced the court’s decision.

“A geographical interpretation would prevent the resale of, say, a car, without the permission of the holder of each copyright on each piece of copyrighted automobile software,” wrote Justice

Stephen Breyer. “[. . .]Without that permission a foreign car owner could not sell his or her used car.”

Patents: In Lexmark v Impression (2017), they again sided with product owners, ensuring that owners couldn’t be prosecuted for patent infringement for reselling products (or parts of products). Impression Products wanted to make toner a bit cheaper by refilling Lexmark printer cartridges. Lexmark of course hated that and sued.

Impression Products vs. Lexmark International hinged on two points: Did Impression infringe upon Lexmark's patents by (1) reselling cartridges in the United States when Lexmark explicitly prohibited reuse and resale, and (2) importing without authorization cartridges Lexmark sold abroad. Various courts split on these questions, and everyone from the AARP and Huawei to Costco and the Auto Care Association weighed in when the case finally reached the Supreme Court.

"This case raises important questions about the reach of American patent law and how much control a manufacturer can exert after its products have been lawfully sold," the editorial board of The New York Times wrote in 2015. "Taken to their logical conclusion, Lexmark's arguments would mean that producers could use patent law to dictate how things like computers, printers, and other patented goods are used, changed, or resold and place restrictions on international trade."

"Take a shop that restores and sells used cars," chief justice John Roberts wrote in the majority opinion. "The business works because the shop can rest assured that, so long as those bringing in the cars own them, the shop is free to repair and resell those vehicles. That smooth flow of commerce would sputter if companies that make the thousands of parts that go into a vehicle could keep their patent rights after the first sale." No one besides the dealership would fix your car if it meant risking a patent lawsuit.

With the Supreme Court issuing definitive rulings on copyright and patent exhaustion, expect manufacturers to turn to contract law—like sneaky end user licensing agreements—to enforce their will. You already see it happening. John Deere, after losing a DMCA 1201 exemption fight to Repair.org, simply updated its EULA to block software modification in its tractors. Litigation dodged, problem solved. "They can't infringe upon your ownership rights if you've already signed them away," Gay Gordon-Byrne, director of Repair.org, told iFixit.

Arguments for Repair Options

Independent Repair Is an Effective, Safe Option for Consumers

If you haven’t been to an independent repair shop, you’re missing out on some true art. Take Steven and Nicole Spink, owners of Olympia iPhone Repair in Washington. They can seemingly fix anything—board-level repairs that Apple would refuse to perform are a piece of cake for them, and far less costly than replacing your device. (You can hear Nicole describe these challenges in this Washington hearing on Right to Repair laws—just skip to 6:40.) Unfortunately, without device schematics and other tools from Apple, they can’t always do those jobs, causing them to lose business and forcing customers to pay much more for a full part replacement from Apple.

Manufacturers are focusing on one big lie in order to halt local repair: That you can't trust independent repair shops, only the manufacturers themselves.

Corporate lobbyists paint a bleak picture of third-party shops, arguing that these places use low-quality parts, install them improperly, and grift their customers. This couldn't be further from the truth. In reality, most independent repair shops are no different than your friendly, local auto mechanic whom you recommend to your friends and family any chance you get. And many of them are fully capable of performing the same repairs that manufacturers do—plus some repairs the manufacturers *won't* do.

Independent Shops Are Often as Good as the Manufacturers—If Not Better

Manufacturers constantly tell us that those who are properly trained,"authorized," or "certified" by said manufacturers are the only ones who should be repairing our devices. But more often than not, independent repair shops are just as "properly trained" as anyone to fix your broken stuff.

Many independent repair technicians have gone through the same training and certification processes that manufacturers require out of their own technicians. It's also not uncommon for independent repair shops to have former technicians from big manufacturers on staff, especially from companies like Apple, HP, Microsoft, and others.

What's more, many common repairs don't require extensive expertise. You don't need years and years of training to replace a smartphone battery or a cracked screen. In fact, we constantly receive success stories from folks all over the world who have fixed their own device without any former training or knowledge. From retirees to teenage enthusiasts, our members are impressively capable. Obviously, you want your professional repair technician to be competent, but you don't need a master's degree in engineering and a handful of certifications to be good at fixing stuff.

Gabriel, who has been in the industry since 2002 and is currently the Operations Manager at The Computer Cellar in Durham, NC, can attest to this. "We've met teenagers that have walked into the shop and started discussing computers and technology with us and we've said to each other, 'that kid could do our job,'" he says.

This is true even of those more complex repairs the manufacturers won't tackle. "One of our ex-techs joined us at 19 with only hobbyist experience," Gabriel says. "When he left, he was teaching himself board-level repairs. He's now, at 22, pulling a better salary than me, plus some stellar benefits, working for a university."

"Board-level" repairs involve fixing the circuit board itself by replacing individual components, instead of replacing the entire expensive circuit board. These advanced repairs require microsoldering skills, specialized equipment, and a very steady hand.

So what about those repair parts that manufacturers keep harping on? Well, your local shop has a reputation to uphold. It's in their interest to use a reliable part that meets your high expectations. It's not too difficult to find aftermarket components that come from the same suppliers that manufacturers use.

Furthermore, a lot of shops will harvest the good parts out of other broken devices in order to get that coveted OEM logo. “When appropriately refurbished with good tools, these are great and are the best solution,” says Isaac.

In fact, we know that a lot of repair shops use high-quality parts, because in some cases, we’re the ones that supply those parts! Through our iFixit Pro wholesale parts program, we partner with independent repair shops and offer our parts, tools, and support so that those repair shops can offer their customers a great experience. All of our parts are sourced from reputable, trustworthy suppliers, and we do extensive in-house testing on everything to make sure it’s up to snuff.

Independent Shops Can Perform Repairs That Manufacturers Won’t

Most manufacturers focus their repair training on the most frequent repairs. Apple, for example, won’t replace lightning ports in their stores—getting this service requires shipping your device to a dedicated Apple service center. It’s not uncommon for manufacturers to turn away repair jobs, either because it’s not worth their time and effort, or because they don’t have the proper tools and expertise to do the repair. Independent repair shops, however, are much more willing to do these more challenging jobs.

Isaac can attest to this, explaining that manufacturer technicians “are usually ‘good repairmen,’ but they don’t have the level that people repairing boards have, and will never have unless they train. So the Genius from Apple is even worse. He only knows how to use software that says a few things about the phone.”

Josephine and Dave Billard’s experience with their water-damaged iPhone is a great example. Here’s the short version: the couple wanted their photos recovered from an unresponsive iPhone, but Apple said they couldn’t help. They were able to find an independent repair shop (iPad Rehab near Rochester, NY) that could perform more complex board-level repairs, getting the phone up and running just long enough to back up the photos. Apple doesn’t have the necessary tools for jobs like this, so without this independent repair shop, Josephine and Dave would’ve lost their vacation photos forever.

We could spend all day sharing stories of manufacturers’ inability to perform repairs. Odds are you’ve run into this yourself!

“My own father-in-law experienced an unresponsive screen one random day with his 5th-generation iPod Touch,” says Craig Lloyd, former staff writer at iFixit. “Apple said they couldn’t fix it, so he ended up just buying a new iPod Touch.”

This kind of repair is definitely possible, and a whole new screen assembly is just $40. A local repair shop could perform this repair for much less than the cost of a new iPod Touch.

Consumers Should be Able to Decide Their Risk Tolerance

No matter what the situation is, there’s always going to be *some* risk involved during a repair, whether it’s a phone, car, refrigerator, or toaster. But for the most part, that risk is pretty low.

Going to a reputable and trustworthy independent repair shop is perhaps no riskier than bringing the device to the manufacturer itself. Again, many shops are highly trained and use high-quality

parts in their repairs. Plus, any good shop worth its salt will offer their own warranty on both the repair and the parts.

Finding a quality local repair shop is no different than finding a good, reputable auto mechanic. Ask for recommendations from friends and family who have patronized independent repair shops in the past—this is probably the best way to find a good shop that can service your broken device, as those who have gone through the same thing as you're about to go through can provide valuable insight into a shop's trustworthiness and level of customer service. We have found that pros who contribute to iFixit tend to run pretty fantastic businesses, and we have a directory of them.

New Obstacles to Service in the Twenty-first Century

As the years have worn on, manufacturers have made more and more choices that prevent you from repairing your devices—some may be mere cost-cutting measures, while others are more egregious, locking you out for the sole purpose of preventing you from repairing your own device. Here are some of the most common examples.

Repair Restriction: Slapping "Warranty Void If Removed" Stickers on Your Product

Warranty void if removed sticker on a PlayStation 4.

When you crack open the back panel on your device—or perhaps even before—you'll often find a sticker that claims your warranty will be void if you break the seal. But that's illegal under the Magnuson-Moss Warranty Act of 1975. A manufacturer can't deny a warranty repair for, say, your screen just because you replaced your own battery. There are a lot of things manufacturers do to sort of passive-aggressively discourage you from fixing your stuff, but the warranty-void-if-removed stickers are much more overt. This law has gone unenforced for too long, but thankfully the FTC has begun cracking down on this misleading practice—though many manufacturers are still doing it. In 2022, they ordered Harley, Westinghouse, and Weber to change their warranty practices.

A recent US PIRG study found that manufacturers are routinely flouting Magnuson-Moss with no-disassembly clauses in their user manuals.

Repair Restriction: Requiring Expensive Contracts for Security Updates

Availability of security updates and firmware for enterprise IT equipment is a major obstacle for the industry. Enterprise companies often require expensive support contracts in order to receive security patches. There is a long track record of monopolization of service in enterprise equipment.

In 1956, the DOJ charged IBM for violating antitrust laws. The resulting consent decree "enjoined and restrained [IBM] from requiring any purchaser of an IBM tabulating or electronic data processing machine to have it repaired or maintained by IBM or to purchase parts . . . from IBM."

Oracle and Cisco also have restrictive firmware regimes. Cisco's Smart Licensing System was introduced in 2014, but started becoming mandatory with the IOS XE 16.10.1a update in 2019. Cisco claims this allows for more flexible management of hardware licenses—but it also gives Cisco more control over hardware you've purchased.

Before Smart Licensing, switches were largely a set it and forget it deployment—you bought a piece of hardware along with a license to use the software on it. If you sold that hardware, the license went with it. Third-party companies could help you maintain your equipment when you ran into problems, even if the manufacturer had deemed the product End of Life for first-party support.

More importantly, since the license resides on Cisco's servers, and "Cisco will be in charge of whether the unit works or not," Todd Bone, founder and president of XS International, a third-party IT maintenance company, explained to iFixit. They could change their minds later on and limit your ability to use hardware you thought you owned.

Units managed via Smart Licensing also cannot be resold, which the Association of Service, Communication, Data, and ITAD Providers (ASCDI) identifies as a serious threat to refurbishment operations. Smart Licensing, Bone writes for ASCDI, "will restrict the ability to buy refurbished hardware" and "eliminate residual value on your hardware purchases."

Security updates should be distributed as widely as the products themselves are, particularly for critical cyber infrastructure. Short-sighted profiteering is putting our infrastructure at risk.

Repair Restriction: Diagnostic Software

In 2016, Apple confirmed that a software update had been quietly killing phones repaired outside of their "authorized" service network. Initially, the software giant defended "Error 53" as a security measure—and put the blame on independent repair shops and shoddy parts. Consumers, DIY hobbyists, and repair pros called out Apple for misrepresenting the facts. Apple apologized, admitted that Error 53 was a software mistake, and issued a software patch that fixed phones "bricked" by the error.

Apple reversed its position because consumers and repair professionals took a stand. It was a clear victory for the right to repair your stuff. But they continue to indicate that this software may be necessary for repairs going forward: "MacRumors obtained an internal document from Apple

stating that Macs with the Apple T2 chip, including the iMac Pro and 2018 MacBook Pro, must pass Apple diagnostics for certain repairs to be completed."

Apple is not the only one limiting access to diagnostics. Farmers need access to John Deere's diagnostic software to debug their equipment. Deere doesn't make it available to anyone except their authorized technicians, driving farmers to extreme options. A Motherboard investigation found underground forums trafficking in pirated diagnostics:

> "Once I was on it, I found dozens of threads from farmers desperate to fix and modify their own tractors. According to people on the forums and the farmers who use it, much of the software is cracked in Eastern European countries such as Poland and Ukraine and then sold back to farmers in the United States. ... "
>
> "Farmers worry what will happen if John Deere is bought by another company, or what will happen if the company decides to stop servicing its tractors. And so they have taken matters into their own hands by taking control of the software themselves."

The cybersecurity of our food supply chain would be better served by direct sources of this software.

Repair Restriction: Parts Pairing

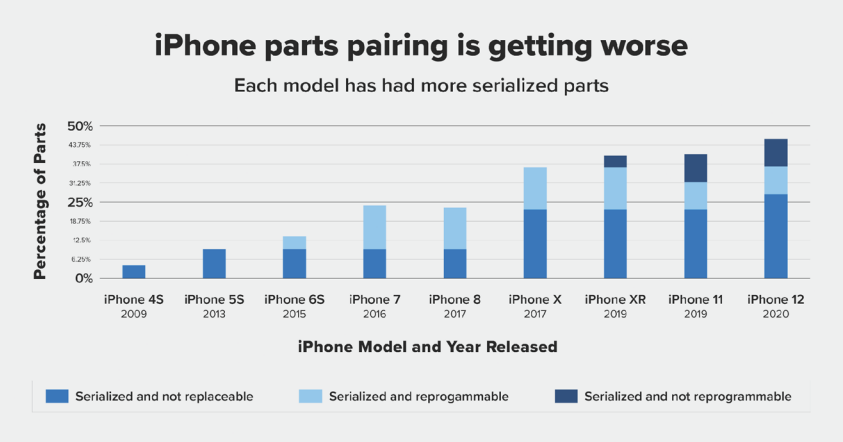
One significant obstacle to repairing software-enabled products is parts pairing, the practice of requiring remote authentication to enable a new part. Many manufacturers do this, from John Deere to General Motors to Apple. This practice effectively enables manufacturer control of every single repair, in dramatic contrast to how the free market of resale and repair has traditionally functioned.

Apple's new consumer repair program is limited by software locks. Parts sold through Apple's Self-Service Repair Program are paired with the device's serial number at the factory. To purchase a part, a customer must input their phone or laptop's serial number; if they try to install that part in another device, it won't work.

Apple's new consumer repairs program, launched in 2022, allows only a limited, serial number-authorized set of repairs. You cannot purchase key parts without a serial number or IMEI. When you're done installing the part, you need to pair it with the phone you indicated in your purchase, via over-the-air configurator software Apple support enables through chat.

If you use an aftermarket part, there's an "unable to verify" warning after installation. This strategy hamstrings professional third-party repair with feature loss and scare tactics and could dramatically limit options for recyclers and refurbishers, short-circuiting the circular economy.

Requiring parts pairing essentially puts an expiration date on iPhones. When a refurbisher gets a functioning phone with no parts support, there will be no way for them to fully restore a product that needs a display replacement—even if they have an original Apple display from another phone.



For now, parts pairing makes doing many repairs outside Apple's systems annoying but not impossible—a third-party battery will still work, although for several days the phone will display warnings, there will permanently be a red notification in the settings, and the battery health indicator might not work. Some repairs are impossible outside of the Apple store: For instance, to keep FaceID working on a new iPhone display, the repairer has to move over the original camera module. If that camera module is broken, or the fragile FaceID components get damaged in the transfer, nobody can complete the repair outside of Apple—and Apple will charge nearly the cost of a new phone for that repair. True Tone and auto brightness functionality is disabled after a screen replacement conducted outside an Apple store, even when using an original Apple screen.

But the lurking risk of parts pairing is that it essentially builds a kill switch into the device. If Apple wanted to disallow third party parts entirely, they have the technological means to do so. Apple has released updates that have had the effect of bricking or limiting phones fixed with third party parts (see the Error 53 debacle and the iPhone 12's unswappable rear camera).

Though Apple is the most famous parts pairing offender, lots of other manufacturers have taken this page from their playbook. Devices ranging from chainsaws to washing machines to tractors use serialization to keep parts under manufacturers' control.

Repair Restriction: Wireless Telematics

Who owns our vehicles? The answer used to be obvious. But with the advancement of telematics, safety, usage, location, system health, error codes and other data from a car are now tied to cloud services controlled by the manufacturer, so the answer has changed. Manufacturers can shut off remote services at any point and render hardware inoperable, and modifications to software to restore functionality can be illegal under DMCA Section 1201. These restrictions are impacting more people than ever before because the line between hardware and software, physical and digital, has blurred.

Telematics is simply the remote transmission of information from a product to a remote computer. The current legislative and court battle is over automotive telematics, but the fundamental principles apply to all products. VanMoof, a Dutch bicycle manufacturer, is currently undergoing a bankruptcy proceeding and bicycle owners fear that they won’t be able to operate their bicycles when the remote servers shut off. Apple and John Deere’s parts pairing technologies require a remote authentication from their servers before a new part is fully operational.

Using, repairing, and modifying modern products requires access to information: code, service manuals, error codes, and diagnostic tools. Silicon and telemetry permeate and power almost everything we own.

Access to telematics is a property rights issue. Who has the right to the data from our products? Should we be able to reprogram devices to talk to our own servers, rather than the manufacturer's?

The current state of affairs is biased against product owners, turning regular people — like students, researchers, and small repair business owners — into criminals. Fortune 500 telecom manufacturer Avaya, for example, is known for suing IT service companies, accusing them of violating copyright for simply logging in to their customer's phone systems. With modern telematic systems, automotive manufacturers could use the same techniques to prevent independent management and service of automobiles.

Independent repair shops and software developers can only innovate around open products. The process to create new repair services and apps is only possible if the design is open and supports new ideas, products, and markets. Unfortunately, the manufacturer's approach to telematics has been anything but transparent.

Our industry, and the members that we serve, need to be able to access telematics information. Product owners' data should be used to serve more than the narrow commercial interests of a few large corporations.

If this information was available, then governments, researchers, and software startups would be able to innovate with it. They could build pro-active repair apps to help people maintain their equipment more effectively. Imagine if consumers had the information that their vehicle emissions were spiking, and could proactively get it fixed rather than waiting for a smog check. Innovative companies could develop monitoring applications for fleets of equipment.

Open data breeds innovation. Guaranteeing access to telematics information will benefit local innovators, consumers, and the environment.

Manufacturers are unfortunately using new technology to prevent users from accessing their data and repairing or modifying the devices they have bought, from tractors to printers to coffee makers. They are invoking vague 'intellectual property' concerns to justify and protect these anti-consumer behaviors.

These concerns are outweighed by the urgent needs of citizens to maintain their equipment. Property owners should have control over how their property is repaired or modified.

Right to Repair will enable better security. Security professionals agree that if the security of a product relies on nobody knowing how it works, it is much less likely to be effective. Opponents of the Right to Repair appeal to "security through obscurity" as a justification to keep products closed, even though this approach has been discredited by the security community. Kerckhoffs's principle states that a cryptosystem should be secure "even if everything about the system, except the key, is public knowledge."

Repair Restriction: Using Rare or Proprietary Screws

Most people don't have a tri-wing screwdriver lying around in their garage to open Amazon's Fire TV gaming controller..

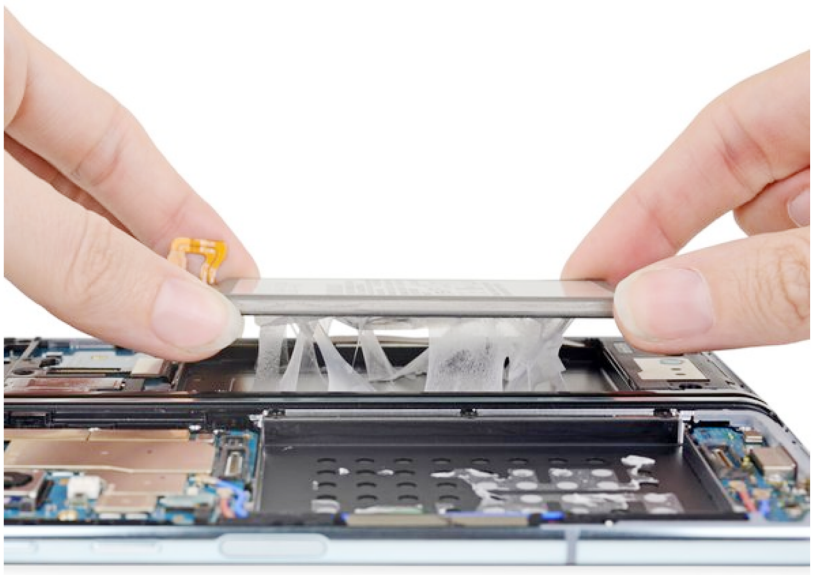
Everyone has a screwdriver at home, and some tech-savvy individuals may even have a set of torx bits in their toolbox. But manufacturers are increasingly using even harder-to-find screws that prevent you from getting inside your device.

"The easiest one to pick on is Apple, because they picked a screw design so obscure we'd never even heard of it," says Jeff Suovanen, Senior Teardown Engineer at iFixit. "And we know it wasn't for engineering reasons, because the iPhone got along fine with ordinary Phillips screws—until all of a sudden the iPhone 4 switched to pentalobe screws. But only on the outside—none of the interior screws were changed. Since no one had a pentalobe driver, the clear intent was to tamper-proof your iPhone."

Apple isn't the only manufacturer to do this, of course—Nintendo was doing it all the way back in the 80s with a special security bit on NES cartridges and, later, on the Super Nintendo. These kinds of lock-out moves have only proliferated. These days, Nintendo uses rare tri-point screws on their hardware, Amazon uses tri-wing screws on the Fire TV, and Sony uses Torx security screws in the PlayStation 4.

"Torx security screws are some of the most frustrating ones, because a lot of people have torx drivers in their toolbox," says Suovanen. "But manufacturers take that extra little step and use a torx security bit—which again, adds nothing engineering-wise to the device. It's just an attempt to keep you out." Some manufacturers don't go quite this far, but will still hide screws under rubber pads or other panels.

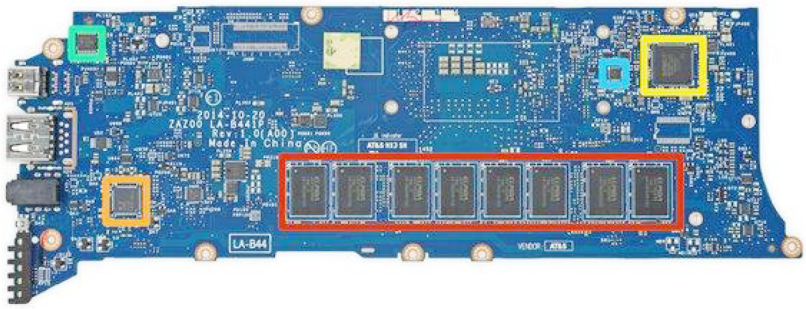
Repair Restriction: Gluing Instead of Using Screws



The Samsung Galaxy Fold has two batteries, both held down with gobs of industrial adhesive that can only be removed with the help of a solvent.

In the age of sleek, curved devices with no obvious seams, many manufacturers have turned to glue instead of screws to hold things together. “There are legitimate reasons to use glue—like waterproofing,” says Suovanen. “But there is almost always a better way, like using screws and gaskets. Glue is very difficult to work with if you’re trying to repair something. It’s difficult to separate without breaking things, and it’s a pain to replace.” And when you use glue to hide those seams, it makes the device appear impossible to open, disincentivizing users to repair their device, instead of grabbing the ol’ Phillips head and taking a look inside.

Repair Restriction: Soldering Components Together to Make Upgrades Impossible



The Dell XPS 13 is one of many laptops with RAM soldered directly onto the motherboard.

Once upon a time, you could open up your laptop, pop in some new RAM or a bigger hard drive, and get an extra couple years out of your computer. But that's often not the case anymore. "We've grudgingly accepted that most mobile CPUs are soldered onto the motherboard these days, and frequently that's the only option the manufacturer has—that's how they come from Intel," says Suovanen. But RAM and storage are often soldered to the motherboard unnecessarily, eliminating the possibility of otherwise easy upgrades. "There's no reason why you can't have a very thin, very light device with modular RAM and a removable blade SSD. We know because we've seen it done in devices like the LG Gram and the HP EliteBook line (which is particularly repair-friendly)." When you see a label that says "no user serviceable parts inside," you know the manufacturer has soldered everything together and you have no chance of squeezing a few extra years out of the device when it slows down.

Good luck trying to put this Microsoft Surface Laptop back together.

In the most egregious cases of planned obsolescence, manufacturers will make a device difficult or impossible to open—at least, without inflicting irreparable damage. “The Surface Laptop is one of the only devices that we’ve awarded a 0 out of 10 in repairability, because it was so obvious that it was designed never to be taken apart or serviced—even by professionals,” says Suovanen. “In a nutshell, Microsoft ultrasonically welded the chassis together and then glued a fabric cover down over the top. There’s no way to take that apart without destroying it. You could put it back together with a roll of duct tape, but that’s about it.” That means if your device breaks, you’re completely out of luck—the manufacturer may give you a new device under warranty, but if your warranty has ended, you’re basically stuck buying an entirely new laptop.

In our Answers forum, one member’s question about how to fix the broken glass on your Microsoft Surface has been viewed over 30,000 times. Another member asked whether they could upgrade the RAM on their Surface—proving that they want to hold onto their device instead of buying a new one—and racked up another 30,000 views. In both scenarios, there is no repair solution.

In 2021, Microsoft reached a groundbreaking settlement with shareholders: it committed to studying the environmental impact of making parts and repair information available to shops and individuals, and implement the findings of that study within the next year. Microsoft also pledged to activist shareholder As You Sow to make parts available outside its authorized repair network, and “initiate new mechanisms” to give consumers local repair options.

Microsoft commissioned a report looking at the impact of design for repair on their products by Oakdene Hollins, who found that "all forms of repair offer significant greenhouse gas (GHG) emission and waste reduction benefits. It also found that enabling repair through device design, spare part offerings, and localization of repair have significant potential to reduce carbon and waste impacts."

Microsoft has followed through on this report and completely redesigned the Surface Laptop to make it easier to service, radically improving the ease of repair.

Repair Restriction: Refusing to Sell Replacement Parts

iFixit's iPhone X battery service manual. The battery is securely glued in place.

Design choices aren't the only way manufacturers prevent repair. Many companies, for example, choose not to offer official replacement parts to individuals or repair techs. "We're used to being able to buy replacement parts for our cars and appliances, but that's often not the case with your smartphone or laptop," Suovanen says. And when manufacturers refuse to sell Original Equipment Manufacturer (OEM) parts, repair shops and users have to turn to third-party components instead, which can be problematic.

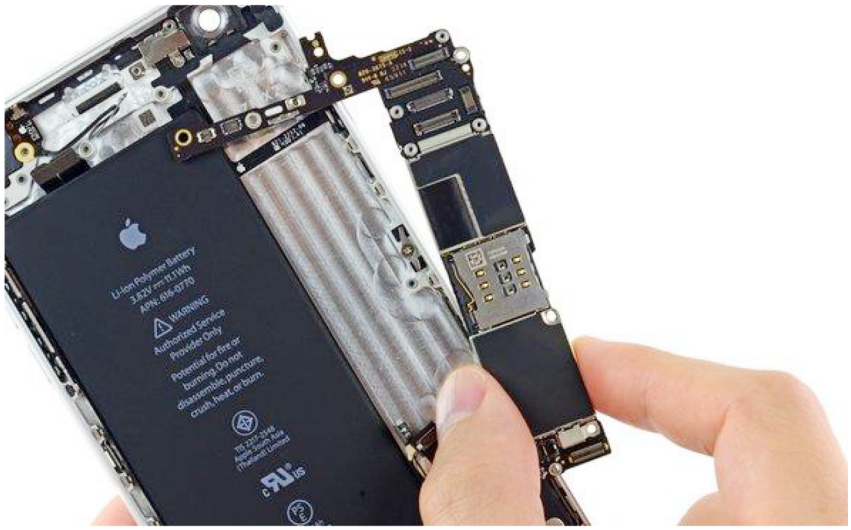
"It's very hard to find good parts when the market is flooded with low-quality imitations that don't perform well. In the case of batteries in particular, some of those third-party components can be dangerous—a cheap battery can destroy your device, or burn down your house." Here at iFixit, we do the legwork for you, sourcing the highest quality parts we can find and testing them thoroughly before selling them in our store. But if you search for a replacement battery

elsewhere, there's no guarantee of what you'll get. This whole process would be much easier and safer if people were able to buy official parts directly from the manufacturer.

That should change as a result of the New York and Minnesota laws, which require manufacturers to sell parts to consumers and independent shops, and will be phased in starting in 2024.

Even when you *can* find an OEM part, some manufacturers put restrictions in place that prevent you from using it to the fullest. "If you replace the screen on your iPhone—even if it's with a brand new OEM screen off of another identical iPhone—certain features like TrueTone won't work correctly," says Suovanen. This compels users to go directly to the manufacturer for repairs, no matter what they cost.

Repair Restriction: Claiming Repairs Are Impossible or Too Expensive



Removing an iPhone circuit board to recover the data, a service that Apple does not provide.

Finally, manufacturers will falsely tell users that certain repairs can't be done, even when independent shops are perfectly capable of performing them. "People go to the Genius Bar with very common problems that our repair community knows how to fix, but Apple tells them it can't be done," says Suovanen. For example, Apple won't help you recover data on a water-damaged iPhone, and they won't refer you to third-party repair shops who can. In other cases, they may quote a repair price that's high enough that most customers will just throw up their hands and buy a new device.

The Failure of Green Standards to Inform Repairable Device Design

Tech companies are standing in the way of stronger green electronics standards in the US, according to a report by Repair.org. It finds that device manufacturers have systematically blocked attempts to promote longer-lasting, more repairable devices.

Green electronics standards help people identify sustainable products and reward manufacturers that incorporate green designs. New products are scored against environmental performance criteria and are included on the EPEAT registry with a Bronze, Silver, or Gold designation. Eco-minded buyers—including the US government—rely on the EPEAT registry to guide billions of dollars in purchasing.

But manufacturers have been watering down the standards, as detailed in an analysis—Electronics Standards Are In Need of Repair—commissioned by Repair.org. The standards are supposed to be written by a balanced group of volunteer stakeholders, including representatives from major electronics producers. But manufacturers now occupy a large number of seats on the standards boards. They are abusing their position, diluting the standards to meet their existing products instead of designing leadership standards that encourage better products.

Despite overwhelming consensus that extending product lifespans is better for the environment, tech companies have largely blocked efforts to award points for products that are easier to repair, easier to upgrade, and easier to disassemble for recycling.

Instead of leading the way, green standards in the US "have become a complicated way for manufacturers to greenwash products that have a devastating environmental impact and pat themselves on the back for business as usual," the report concludes.

State-level Efforts to Restore Our Right to Repair

This section outlines four steps that state legislation is taking to increase access to repair options across America.

Make Service Manuals Public

To keep electronic devices working for as long as possible, recyclers, professional technicians, and home repair experts need information about how to safely and successfully disassemble their electronics. Publishing comprehensive service documentation will extend electronics' usable life better than any other single action.

These manuals should include exploded diagrams of parts, compatibility charts, wiring diagrams, step-by-step disassembly instructions with required tools, product specifications, maintenance procedures, and troubleshooting information. When good repair documents are freely and easily available, people will fix their old devices instead of buying new.

Fortunately, almost all manufacturers already have this information, and could enact real, immediate change by simply making it publicly available. Historically, manufacturers always provided this information to their customers. Recently, though, some companies have chosen to treat service documentation as proprietary information and guard it from public view. Apple in

particular is known for using copyright law and legal threats to prevent retransmission of their service manuals.

Dell, HP, and Lenovo already make their documentation public, which has helped create tens of thousands of repair jobs. Apple and Samsung have started to open up their documentation. But it would be more effective if technicians could reproduce the documentation the way that foreign technicians do. Fixing this copyright issue would bring us up to par with where the Chinese are now.

Make Circuit Diagrams Public

Repair isn't always a matter of simply swapping out trouble components. When complex components fail, they should be fixed instead of sent off for recycling. Board-level repairs require circuit schematics, which include component layout and electronic wiring diagrams. These documents make it possible for technicians to replace individual capacitors, for example, instead of scrapping an entire circuit board. Since circuit diagrams are largely standardized for international use, these diagrams are especially useful to aftermarket refurbishers overseas, where much of the component-level repair actually takes place.

These schematics are in high demand by technicians. iFixit received a DMCA takedown notice from Apple on December 8, 2015, demanding the removal of a circuit schematic uploaded by a community member for a MacBook Pro logic board. YouTube personalities Louis Rossman and Jessa Jones post popular training videos for technicians using schematics that are not available through legal means.

The circuit diagram should include the approved vendor list, or AVL, and Bill of Materials (BOM) detailing the specific part number and manufacturer for each component. It's important to know precisely which parts are needed.

The capacitor plague caused millions of electronics over the last twenty years to fail prematurely. The parts needed to fix the failing devices usually cost less than $1, but knowing which parts to buy requires access to manufacturer information. Because this information is not available, relatively few machines have been repaired. Most were shredded. Some particularly savvy repair technicians have reverse engineered the circuit and created informal diagrams, which vary widely in quality and availability. Authoritative circuit diagrams would make component repair more attainable for both professional technicians and do-it-yourselfers.

Make Semiconductor Documentation Datasheets Public

Microchips are the most toxic part of electronic devices. Massive amounts of high-purity water, electricity, and toxic chemicals such as arsenic are used in semiconductor fabrication. Despite the enormous environmental costs, microchips are everywhere—from children's toys to complex computers.

Running any functional chip through a shredder is a massive waste of resources. Even when a device is beyond repair, chips can be recovered and repurposed. Made widely available on the internet, semiconductor engineering documentation would allow technicians around the world to recover microchips and reuse them in other devices.

Make Service Parts and Tools Available to Third Parties.

California law requires manufacturers make a service option available for seven years after the sale of a device. Manufacturers generally comply with this by providing repair service for a fee, rather than selling parts to independent service technicians and consumers.

Without access to OEM parts, service technicians are reliant on gray market parts and parts scavenging, where they pull parts from non-functional devices.

The new New York and Minnesota laws will require manufacturers to sell parts directly to consumers, and many manufacturers are starting to do so. Apple, Samsung, Google, Microsoft, Logitech, HTC, Valve, and Motorola are among companies starting to make parts available.

Conclusion

A robust repair market creates and expands job opportunities in the US, keeps reusable and repairable products out of the waste and recycling streams, and gives consumers more options for what to do with a malfunctioning product.

Over the last few decades we've gone from a world where software is rarely seen outside of a general-purpose computer, to a world where billions of microprocessors are embedded every year in virtually every type of device. Essentially all categories of manufactured products, from lightbulbs to toothbrushes, now contain software that is central to their functionality. As a result, software has also become central to their repair. Manufacturers are, unfortunately, taking this opportunity to prevent users from repairing or modifying the devices they have bought, from tractors to smartphones.

Americans expect to be able to tinker with and repair their devices. Allowing more people to repair devices is a broad public good that is hindered by a number of companies' short-term focus. We can, and should, do better.

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Mr. ISSA. Thank you.
Mr. Hartline?

STATEMENT OF DEVLIN HARTLINE

Mr. HARTLINE. Chair Issa, Ranking Member Johnson, and Members of the Subcommittee, thank you for the invitation to testify at this timely and important hearing.

My name is Devlin Hartline and I'm a legal fellow at the Hudson Institute's Forum for Intellectual Property.

I'd like to start with a question posed by the title of this hearing: Is there a right to repair? The answer is, clearly, no. A right is a legally enforceable claim against another, but the courts have not recognized that manufacturers have the duty to help consumers make repairs. Instead, the courts have said that, while we have the ability to repair our things, we also have the duty not to infringe the IP rights in the process. So, it is, in fact, the manufacturers who have the relevant rights, not consumers.

Right-to-repair supporters want lawmakers to force manufacturers to make the tools, parts, and knowhow needed to facilitate repairs available to consumers and independent repair shops. The assumption here is that anything standing in the way of repair opportunities must necessarily harm the public good. These tools, parts, and knowhow are often protected by IP rights, such as copyrights and design patents.

We protect copyrighted works and patented inventions because, as the Constitution recognizes, this promotes the public good. We reward creators and innovators as an incentive for them to bring these things to the marketplace, and the public benefits from the introduction of new products and services that increase competition.

Thus, the right-to-repair movement isn't based on a preexisting right. It's, instead, asking lawmakers to create a new right at the expense of the existing rights of IP owners.

There have been several bills introduced at the Federal level, and they, generally, take one of two approaches. So, the first is to rewrite the Copyright Act or the Patent Act in a way that directly limits IP rights. So, this is the approach with the SMART Act and the Freedom to Repair Act.

The second approach is to define the normal exercise of IP rights as an unfair or deceptive practice to be enforced by the FTC. This is the REPAIR Act and the Fair Repair Act.

Of course, the FTC already has the authority to address unfair or deceptive trade practices. It's noteworthy that, even after promising to crack down on this 2 years ago, the FTC has not brought such an enforcement action against a manufacturer, though it has brought a few actions related to warranties.

So, I submit that the reason for this is simple. IP owners are merely exercising their federally protected IP rights, and this is not actionable anticompetitive conduct. It is, instead, how the IP system is supposed to work. We grant IP owners exclusive rights, so they can exclude others, and this, in turn, promotes the investments to create and to commercialize these creative innovations in the marketplace. That promotes the public good.

As tempting as it may be to take away or limit IP rights, so that others can copy, and then, call that competition, I would urge the Members to think about whether that truly represents sound economic policy. The fact that the definition of unfair or deceptive practices would have to be changed shows that it's not really a competition law problem.

I would recommend against micromanaging the free-market system to pick winners and losers. The market does a great job of sorting this out already.

With that, I, again, thank you for the invitation to speak today.

[The prepared statement of Mr. Hartline follows:]

Testimony of Devlin Hartline
Legal Fellow, Forum for Intellectual Property
Hudson Institute, Washington, D.C.

Before the House Committee on the Judiciary
Subcommittee on Courts, Intellectual Property, and the Internet
United States Congress, Washington, D.C.

"Is There a Right to Repair?"

July 18, 2023

Chairman Issa, Ranking Member Johnson, and Members of the Subcommittee,

Thank you for the invitation to testify at this important and timely hearing on the intellectual property ramifications of the right to repair movement. I am currently Legal Fellow at the Hudson Institute's Forum for Intellectual Property in Washington, D.C. The Forum for Intellectual Property supports data-driven research and promotes evidence-based policy discussions about the key role of intellectual property in growing innovation economies and flourishing societies. Prior to joining the Hudson Institute, I was Assistant Professor of Law at George Mason University's Antonin Scalia Law School in Arlington, Virginia, where I taught copyright, patent, and trademark law. My testimony focuses primarily on the intersection of federal copyright law and the right to repair movement—though my thoughts apply equally to the other branches of intellectual property law. In short, I would caution against broad interventions that threaten to upend the legal rights and underlying policies that are directly responsible for the successes of the marketplace that we all enjoy today. This is especially true given the lack of evidence of a market failure that would warrant remedial action by Congress.

Introduction

The right to repair movement has gained significant momentum in recent years as supporters have ramped up their advocacy efforts. Numerous bills have been introduced in the states and in Congress, and a few of these state bills have even become law. Repair advocates want state and federal legislators to require manufacturers and other intellectual property (IP) owners to make available to consumers and independent repair shops the tools, parts, and know-how needed to diagnose and repair electronic devices and other products. The repair movement is premised on the idea that anything impeding repair opportunities is necessarily harmful to the public interest. But frequently left out of the discussion is the fact that these tools, parts, and know-how are often protected by IP rights. The tools include copyrighted computer programs and the means to disable technological protection measures that prevent unauthorized access to and copying of copyrighted works, the parts include innovations protected by utility and design patents as well as trademarks and trade dress, and the know-how includes information protected as trade secrets. The IP ramifications of the right to repair movement are substantial, and any legislative change should take into account the considerable economic and social benefits of IP protection.

The term "right to repair" itself is a misnomer, at least in the strict sense. A "right" is a legally enforceable claim against another to do, or forbear from doing, a given thing, and it implies the correlative duty in the other.[1] The notion that we can fix our things has long been recognized by the courts as one of the normal incidents of property ownership—though no duty of IP owners to help out has been recognized. The issue has arisen primarily in the patent law context. For example, the Supreme Court held in 1859 that "it is obvious" that a person can repair a patented machine "in the same manner as if dealing with property of any other kind."[2] But patent law also recognizes a fundamental distinction between permissible repair, which extends the life of a useful article, and impermissible reconstruction, which amounts to making a copy of the invention.[3] The courts have reached the same conclusion in the copyright law context, where physical copies of copyrighted works can be repaired, but not reproduced.[4] Thus, while it is true that we have the ability to repair our things, IP owners are the only side of the equation with legally enforceable claims—*rights*—and the duty falls on others to not violate those rights when making repairs.

This sleight of hand about a purported repair "right" obscures the fact that it is the recent right to repair movement that would drastically change the status quo by eliminating the rights of IP owners. It is perhaps unsurprising that the most vocal repair advocates also tend to be the quietest about the critical role that reliable and effective IP protection plays in advancing the public good. Repair supporters claim that IP owners are engaging in abusive trade practices when they exercise their exclusive rights in a way that limits competition in the market for repair products and services. They attempt to bolster this position with the policy argument that IP owners are harming consumers and creating more electronic waste. These policy implications are certainly debatable. For instance, a recent economic study demonstrated how right to repair laws could "create a lose–lose–lose situation that compromises manufacturer profit, reduces consumer surplus, and exacerbates the environmental impact."[5] But it is not debatable whether the fundamental premise of the repair movement is wrong. Our IP laws reward creators and innovators as an incentive for them to bring their creative innovations to the marketplace. The other side of this bargain is that consumers benefit from the introduction of these products and services that must then compete on the merits with other products and services. The real complaint of right to repair proponents is that the winners of this market-based competition are collecting their winnings.

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[1] *See, e.g.*, *Right*, Black's Law Dictionary (11th ed. 2019) (defining "right" as, *inter alia*, a "legally enforceable claim that another will do or will not do a given act" and "a recognized and protected interest the violation of which is a wrong"); Wesley Newcomb Hohfeld, Some Fundamental Legal Conceptions as Applied in Judicial Reasoning, 23 Yale. L.J. 16, 31 (1913) ("It is certain that even those who use the word and the conception 'right' in the broadest possible way are accustomed to thinking of 'duty' as the invariable correlative.") (cleaned up).

[2] Chaffee v. Boston Belting Co., 63 U.S. 217, 223 (1859).

[3] *See, e.g.*, Aro Mfg. Co. v. Convertible Top Replacement Co., 365 U.S. 336, 345-46 (1961) ("We hold that maintenance of the patented combination through replacement of a spent, unpatented element does not constitute reconstruction. Mere replacement of individual unpatented parts, one at a time, whether of the same part repeatedly or different parts successively, is no more than the lawful right of the owner to repair his property.") (cleaned up); Wilson v. Simpson, 50 U.S. 109, 123 (1850) ("When the wearing or injury is partial, then repair is restoration, and not reconstruction.").

[4] *See, e.g.*, Doan v. Am. Book Co., 105 F. 772, 777 (7th Cir. 1901) ("To render these books serviceable for use or sale, it became necessary to clean them, to trim the edges of the leaves, and to rebind them. We think that, so far as respects the copyright laws of the United States, no legal right of the appellee was invaded by so doing. A right of ownership in the book carries with it and includes the right to maintain the book as nearly as possible in its original condition, so far, at least, as the cover and binding of the book is concerned.") (cleaned up).

[5] Chen Jin, Luyi Yang, & Cungen Zhu, Right to Repair: Pricing, Welfare, and Environmental Implications, 69 Mgmt. Sci. 1017, 1019 (2022).

Copyright Law Rewards Authors to Promote the Public Good

The Copyright Clause of the U.S. Constitution grants Congress the power "to promote the progress of science . . . by securing for limited times to authors . . . the exclusive right to their respective writings."[6] This is the foundation of our nationwide copyright system, and its importance is readily inferred from the fact that it was listed among the few constitutional grants of authority to Congress, such as the power to coin money, declare war, and regulate commerce. It is also significant that the First Congress, which included many drafters of the Constitution, such as James Madison, quickly enacted the Copyright Act of 1790, which granted to "authors the sole right and liberty of printing, reprinting, publishing and vending" their copyrighted works.[7] The Framers clearly understood that protecting the rights of authors goes hand in hand with protecting our individual liberties, like freedom of speech, which was later secured by the First Amendment in 1791. Indeed, the Framers appreciated that copyright protection is essential to a flourishing society, and they recognized the complementary goals of protecting both copyrighted expression and free speech. As the Supreme Court explained in 1985, "the Framers intended copyright itself to be the engine of free expression."[8]

This fundamental connection between copyright protection and the public good might seem confusing at first blush. After all, the theory is that we increase our collective knowledge by giving authors the right to restrict the dissemination of their works. But the answer to this apparent paradox is simple: Federal copyright law embodies the principle that the best way to advance the public interest is by empowering authors to pursue their own private interests.[9] As James Madison famously put it in the Federalist Papers, the "public good fully coincides with the claims of individuals."[10] Congress secures to authors exclusive rights—property rights—as a reward for their creative labors and as an incentive to profit in the marketplace from the dissemination of their works.[11] The Supreme Court has nicely summarized this insight of the Framers: "copyright law *celebrates* the profit motive, recognizing that the incentive to profit from the exploitation of copyrights will redound to the public benefit by resulting in the proliferation of knowledge."[12] When authors have the legal and economic means to make a living from their creative works, their efforts spread knowledge and add to our collective success. They produce more, foster a growing economy, and ultimately contribute to a flourishing society. In other words, when authors get paid, everybody wins.

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[6] U.S. Const. art. I, § 8, cl. 8 (cleaned up).
[7] Act of May 31, 1790, ch. 15, § 1, 1 Stat. 124 (cleaned up).
[8] Harper & Row Publishers, Inc. v. Nation Enterprises, 471 U.S. 539, 558 (1985).
[9] *See, e.g.*, Eldred v. Ashcroft, 537 U.S. 186, 212 n.18 (2003) (noting that "copyright law serves public ends by providing individuals with an incentive to pursue private ones").
[10] The Federalist No. 43 (James Madison) (cleaned up).
[11] *See, e.g.*, Harper & Row Publishers, Inc. v. Nation Enterprises, 471 U.S. 539, 558 (1985) ("By establishing a marketable right to the use of one's expression, copyright supplies the economic incentive to create and disseminate ideas."); Twentieth Century Music Corp. v. Aiken, 422 U.S. 151, 156 (1975) ("The immediate effect of our copyright law is to secure a fair return for an 'author's' creative labor. But the ultimate aim is, by this incentive, to stimulate artistic creativity for the general public good.").
[12] Eldred v. Ashcroft, 537 U.S. 186, 212 n.18 (2003) (cleaned up).

Copyright law has several built-in limitations that balance the rights of authors with the rights of the public. Since copyright secures exclusive rights in expression, that protection is limited to safeguard the free speech interests of others. Thus, when copyright protects an author's work, that protection extends only to the original expression that the author created.[13] Copyright does not protect the facts and ideas that the author expressed in the work, and these instantly become free for everyone to use.[14] This important limitation promotes the progress of science—learning and knowledge—by allowing others to build on the uncopyrightable facts and ideas that the copyrighted work contains. Likewise, the fair use doctrine allows others to copy, use, and distribute otherwise protected expression under certain circumstances, such as for educational use or social commentary.[15] As the Supreme Court noted this term, fair use reflects a "balancing act between creativity and availability (including for use in new works)."[16] Finally, the Copyright Clause requires that copyright protection last only for "limited times," which ensures that works enter the public domain once the copyright term expires.[17] In sum, copyright law is not a rigid system that robs the public interest by unjustly enriching authors; copyright instead guards the rights of authors while respecting the rights and liberties of others, and this balance advances the good of everyone.

Copyright Law Fosters the Thriving Digital Marketplace

As the technology to make and distribute copies has advanced over the years, copyright law has been updated to ensure that the exclusive rights of authors remain protected. For example, in 1980, Congress amended the Copyright Act to clarify that computer programs are protectable works of authorship.[18] Recognizing that copyright law needed to be adapted to realize the full advantages of the internet, Congress enacted the Digital Millennium Copyright Act (DMCA) in 1998.[19] The DMCA promotes two mutually enforcing goals: fostering the growth of digital commerce for

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[13] *See, e.g.*, Feist Publications, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 348 (1991) ("The mere fact that a work is copyrighted does not mean that every element of the work may be protected. Originality remains the *sine qua non* of copyright; accordingly, copyright protection may extend only to those components of a work that are original to the author.").

[14] *See, e.g.*, Eldred v. Ashcroft, 537 U.S. 186, 219 (2003) ("Due to this distinction [between idea and expression], every idea, theory, and fact in a copyrighted work becomes instantly available for public exploitation at the moment of publication."); 17 U.S.C. § 102(b) ("In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.").

[15] *See, e.g.*, Stewart v. Abend, 495 U.S. 207, 236 (1990) ("The fair use doctrine is an equitable rule of reason which permits courts to avoid rigid application of the copyright statute when, on occasion, it would stifle the very creativity which that law is designed to foster.") (cleaned up); 17 U.S.C. § 107 (providing that "the fair use of a copyrighted work for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright") (cleaned up).

[16] Andy Warhol Found. for the Visual Arts, Inc. v. Goldsmith, 143 S. Ct. 1258, 1273 (2023).

[17] U.S. Const. art. I, § 8, cl. 8; *see also* Stewart v. Abend, 495 U.S. 207, 228 (1990) ("The [Copyright] Act creates a balance between the artist's right to control the work during the term of the copyright protection and the public's need for access to creative works. The copyright term is limited so that the public will not be permanently deprived of the fruits of an artist's labors.") (cleaned up).

[18] *See* Pub. L. No. 96-517, 94 Stat. 3015, 3028 (1980) (amending the Copyright Act to clarify that a "computer program" is copyrightable subject matter); *see also* Whelan Assocs., Inc. v. Jaslow Dental Lab'y, Inc., 797 F.2d 1222, 1234 (3d Cir. 1986) ("Computer programs are classified as literary works for the purposes of copyright.") (cleaned up).

[19] *See* Pub. L. No. 105-304, 112 Stat. 2860, 2863-72 (1998).

consumers and creating opportunities for copyright owners to profit from their investments.[20] Given the ease of online piracy, the drafters of the DMCA understood that copyright owners would be reluctant to distribute their works in digital form.[21] The DMCA was enacted after years of studies, hearings, and active debates among stakeholders, and these extensive processes led representatives from more than 150 countries to adopt two international treaties requiring "adequate legal protection and effective legal remedies against the circumvention of effective technological measures."[22] These treaties were crucial for the United States given the global nature of the internet and the importance of safeguarding the rights of American copyright owners abroad.

To prompt copyright owners to market their works in the digital realm, the DMCA secures technological protection measures (TPMs) that bolster the traditional exclusive rights by preventing infringement from happening in the first place.[23] TPMs come in two varieties: access controls that govern the means of accessing a copyrighted work, and copy controls that prevent the copying a work once it has been accessed. The DMCA imposes liability on someone who bypasses a TPM to access a copyrighted work without authorization.[24] As the legislative history puts it, bypassing an access control is "the electronic equivalent of breaking into a locked room in order to obtain a copy of a book."[25] The DMCA also imposes liability for distributing the tools that others can use to bypass access controls or copy controls.[26] However, the DMCA does not create liability for merely bypassing a copy control when the user already has authorized access to the work that it protects. This preserves the free speech interests of users who might engage in fair use—a point driven home by the DMCA's explicit provision that it has no effect on the fair use doctrine.[27] To

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[20] *See, e.g.*, H.R. Rep. No. 105-551(II), at 23 ("A thriving electronic marketplace provides new and powerful ways for the creators of intellectual property to make their works available to legitimate consumers in the digital environment. And a plentiful supply of intellectual property—whether in the form of software, music, movies, literature, or other works—drives the demand for a more flexible and efficient electronic marketplace.").

[21] *See, e.g.*, S. Rep. No. 105-190, at 8 (1998) ("Due to the ease with which digital works can be copied and distributed worldwide virtually instantaneously, copyright owners will hesitate to make their works readily available on the Internet without reasonable assurance that they will be protected against massive piracy.").

[22] WIPO Copyright Treaty art. 11, Dec. 20, 1996, 36 I.L.M. 65 (1997); *see also* WIPO Performances and Phonograms Treaty art. 18, Dec. 20, 1996, 36 I.L.M. 76 (1997); H.R. Rep. No. 105-551(I), at 9 (1998) ("The conference produced two treaties, the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty, which were adopted by consensus by over 150 countries.") (cleaned up).

[23] *See, e.g.*, MDY Indus., LLC v. Blizzard Ent., Inc., 629 F.3d 928, 948 (9th Cir. 2010) (concluding that the DMCA "creates a new anticircumvention right distinct from copyright infringement" and "strengthens the traditional prohibition against copyright infringement").

[24] *See* 17 U.S.C. § 1201(a)(1)(A) ("No person shall circumvent a technological measure that effectively controls access to a work protected under this title.").

[25] H.R. Rep. No. 105-551(I), at 17 (1998).

[26] *See* 17 U.S.C. § 1201(a)(2) ("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 a technological measure that effectively controls access to a work protected under this title."); *id.* at § 1201(b) ("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 owner under this title.") (cleaned up).

[27] *See* 17 U.S.C. § 1201(c)(1) ("Nothing in this section shall affect rights, remedies, limitations, or defenses to copyright infringement, including fair use, under this title."); *see also* H.R. Rep. No. 105-551(I), at 18 (1998) ("In a fact situation where the access is authorized, the traditional defenses to copyright infringement, including fair use, would be fully applicable. So, an individual would not be able to circumvent in order to gain unauthorized access to a work, but would be able to do so in order to make fair use of a work which he or she has acquired lawfully.").

encourage socially beneficial uses of copyrighted works protected by TPMs, Congress established certain permanent exemptions as well as an administrative procedure for creating temporary exemptions via a triennial rulemaking by the Librarian of Congress.[28]

Today's thriving digital marketplace is confirmation that copyright law is working as intended. Indeed, it is an understatement to say that Congress was prescient in enacting the DMCA to secure the access controls and copy controls that provide copyright owners with the technological impetus to participate in the online economy. Policy advocates campaigning for right to repair legislation rarely acknowledge any of the benefits of TPMs in particular or copyright law in general. This omission is telling given that copyright law has served as the launching pad for the economic and cultural revolutions that benefit us all today. Consumers have unprecedented access to copyrighted content—movies, books, music, games, computer programs—as well as electronic devices and other products that keep getting smarter—phones, televisions, refrigerators, watches, automobiles—because Congress has secured both the traditional exclusive rights in copyrighted works and the TPMs that help to prevent infringement in the digital realm. Repair proponents downplay these clear successes of the copyright system while arguing that the exclusive rights of authors are harmful to the market for repairs. But these exclusive rights promote the public good by making it possible for the people who create these wonderful things to make a profit. Without copyright law, and other IP protections, our smart devices would be overpriced paperweights.

The Myth of the Right to Repair Movement

Right to repair supporters have argued loudly that broad changes at the state and federal level are warranted because manufacturers and other IP owners are limiting repair opportunities for consumers. They claim that these practices unnecessarily increase the cost and time of repairs, create electronic waste, and remove economic opportunities for local businesses. Their message has even reached the White House. In July 2021, President Biden issued an executive order directing the Federal Trade Commission (FTC) to address "unfair anticompetitive restrictions" in the repair market, such as those "imposed by powerful manufacturers" on farmers.[29] Less than two weeks later, the FTC issued a policy statement that promised to "devote more enforcement resources" and "prioritize investigations into unlawful repair restrictions."[30] The policy statement claimed that the FTC had "uncovered evidence that manufacturers may, without reasonable justification, be restricting competition for repair services" during its Nixing the Fix workshop in 2019.[31] This evidence included "limiting the availability of parts, manuals, diagnostic software, and tools," "asserting patent rights in an unlawful, overbroad manner," and "using unjustified technical protection measures."[32] The FTC's July 2021 policy statement reflects a striking departure from its May 2021

[28] *See* 17 U.S.C. § 1201(d)-(j) (creating permanent exemptions for, *inter alia*, educational institutions, reverse engineering, encryption research, and security testing); *id.* at § 1201(a)(1)(B)-(E) (establishing authority of the Librarian of Congress to create temporary exemptions to the prohibition against bypassing access controls).
[29] Promoting Competition in the American Economy, Exec. Order No. 14,036, 86 Fed. Reg. 36,987, 36,992 (Jul. 9, 2021).
[30] Federal Trade Commission, Policy Statement on Repair Restrictions Imposed by Manufacturers and Sellers, at 2 (Jul. 21, 2021).
[31] *Id.* at 1 (cleaned up).
[32] *Id.* (cleaned up).

report to Congress on the Nixing the Fix workshop, which concluded that "the assertion of IP rights does not appear to be a significant impediment to independent repair."[33]

The FTC's alleged evidence of abusive practices by manufacturers boils down to the fact that IP owners are merely exercising their right to exclude. But it is axiomatic that we empower IP owners to decide for themselves whether, when, and how they exercise their IP rights.[34] Take, for example, what the FTC now considers to be the potentially unlawful assertion of patent rights. The evidence in the record came from two commenters. The first commenter cited patent law as one of the "barriers for consumers" to make repairs because the "unauthorized replication of a patented spare part" constitutes patent infringement.[35] This just makes the unremarkable point that patent owners can exclude others from practicing their inventions. The second commenter, a representative of the automotive collision repair industry, complained about "the misuse of design patents on repair parts to block competition from producing equivalent parts."[36] This commenter appears to take the extreme position that *any* use of design patents to protect automotive parts is abusive because it prevents its members from making those same parts and selling them for a profit. But the Federal Circuit has rejected this commenter's self-serving invitation to "eliminate design patents on auto-body parts," and rightfully so.[37] The purpose of patent law is not to subsidize the business models of free riders. Patent law promotes the public good by incentivizing and rewarding the productive labors of inventors by granting them the right to exclude competitors for limited times.[38]

The myth of the right to repair movement is that there is something inherently wrong about IP owners exercising their right to exclude because it limits competition in the market for repair parts and services. But the assertion of IP rights is not anticompetitive in the antitrust sense. Even after promising to take action on repair restrictions in the wake of President Biden's July 2021 executive order, the FTC has yet to bring an enforcement action under its authority to police antitrust violations and unfair methods of competition.[39] The fact that IP owners exercise the right to exclude does not turn them into prohibited monopolists. On the contrary, it has long been recognized that "a central goal of both patent and antitrust law is the promotion of the public benefit through a competitive economy."[40] IP law ensures that new products and services are introduced into the

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[33] Federal Trade Commission, Nixing the Fix: An FTC Report to Congress on Repair Restrictions, at 26 (May 2021).
[34] *See, e.g.*, Cont'l Paper Bag Co. v. E. Paper Bag Co., 210 U.S. 405, 429 (1908) ("As to the suggestion that competitors were excluded from the use of the new patent, we answer that such exclusion may be said to have been of the very essence of the right conferred by the patent, as it is the privilege of any owner of property to use or not use it, without question of motive."); Stewart v. Abend, 495 U.S. 207, 228-29 (1990) ("But nothing in the copyright statutes would prevent an author from hoarding all of his works during the term of the copyright. In fact, this Court has held that a copyright owner has the capacity arbitrarily to refuse to license one who seeks to exploit the work.").
[35] *See* Federal Trade Commission, Nixing the Fix: A Workshop on Repair Restrictions, Comment of International Institute for Industrial Environmental Economics, at 4-6 (Apr. 30, 2019).
[36] *See* Federal Trade Commission, Nixing the Fix: A Workshop on Repair Restrictions, Comment of Automotive Body Parts Association, at 1 (Apr. 30, 2019) (cleaned up).
[37] Auto. Body Parts Ass'n v. Ford Glob. Techs., LLC, 930 F.3d 1314, 1318 (Fed. Cir. 2019) (cleaned up).
[38] *See, e.g.*, Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 480 (1974) ("The patent laws promote this progress by offering a right of exclusion for a limited period as an incentive to inventors to risk the often enormous costs in terms of time, research, and development. The productive effort thereby fostered will have a positive effect on society through the introduction of new products and processes of manufacture into the economy, and the emanations by way of increased employment and better lives for our citizens.").
[39] *See* Section 5 of the Federal Trade Commission Act, 15 U.S.C. § 45.
[40] Int'l Wood Processors v. Power Dry, Inc., 792 F.2d 416, 427 (4th Cir. 1986); *see also* Intergraph Corp. v. Intel Corp., 195 F.3d 1346, 1362 (Fed. Cir. 1999) (Newman, J.) ("The patent and antitrust laws are complementary, the patent

market, thus increasing competition in the marketplace.[41] As the FTC has recognized, there is no antitrust liability with an IP owner's "unilateral refusal to assist its competitors" because it might "undermine incentives for investment and innovation."[42] Nor is there a competition law problem when IP rights confer market power that allows an IP owner to charge supracompetitive rates: "The mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free-market system."[43] The reason is simple: The ability of IP owners to parlay their exclusive rights into "monopoly prices" is what "attracts business acumen" and "induces risk taking that produces innovation and economic growth."[44] Right to repair supporters claim that the system is broken because IP owners exclude competitors in order to increase their profits, but that is exactly how the innovation economy is intended to work.

Conclusion

The right to repair movement recasts the normal exercise of exclusive rights by IP owners as abusive and anticompetitive. This is not only wrong, but dangerous. The exclusive rights secured by IP law make it possible for creators and innovators to commercialize their products and services. If these rights are weakened, the public interest will be harmed by the resulting deprivation of the creative innovations that never reach the marketplace. The right to repair movement presupposes that others should be able to profit where they have not sown, because this will somehow, inexplicably, promote the public good. But that view is inconsistent with the "economic philosophy" behind the U.S. Constitution, which recognizes that the "encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors."[45] The fact that IP owners are exercising their exclusive rights in the marketplace is not evidence of abuse, and it does not present a competition law problem. It is the free-market system working as it should. And we are already seeing how issues over repair opportunities are playing out in the free market.[46] If consumers dislike the repair policies of a given manufacturer, they can express that dissatisfaction with their pocketbooks. Repair supporters are not the first to suggest that creators and innovators should not reap the rewards of their success, and they will not be the last. But their suggestion that the right to repair issue presents a market failure worthy of congressional intervention should be summarily rejected.

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system serving to encourage invention and the bringing of new products to market by adjusting investment-based risk, and the antitrust laws serving to foster industrial competition.").

[41] *See, e.g.*, SCM Corp. v. Xerox Corp., 645 F.2d 1195, 1203 (2d Cir. 1981) ("The public benefits from the disclosure of inventions, the entrance into the market of valuable products whose invention might have been delayed but for the incentives provided by the patent laws, and the increased competition the patented product creates in the marketplace.") (cleaned up).

[42] U.S. Department of Justice & Federal Trade Commission, Antitrust Guidelines for the Licensing of Intellectual Property, at 3 (Jan. 12, 2017).

[43] Verizon Commc'ns Inc. v. L. Offs. of Curtis V. Trinko, LLP, 540 U.S. 398, 407 (2004).

[44] *Id.* (cleaned up).

[45] Mazer v. Stein, 347 U.S. 201, 219 (1954).

[46] *See, e.g.*, P.J. Huffstutter, Deere & Co. Will Allow Farmers to Repair Their Own Equipment, Reuters (Jan. 23, 2023).

Mr. ISSA. Thank you.
Please.

STATEMENT OF AARON PERZANOWSKI

Mr. PERZANOWSKI. Chair Issa, Ranking Member Johnson, and Members of the Subcommittee, thank you for the opportunity to speak with you all today.

My name is Aaron Perzanowski. I am a Professor of Law at the University of Michigan. For the last 15 years, my academic research has focused on the intersection of personal and intellectual property rights in the digital economy.

During that time, the right to repair has emerged as a central challenge to the notion that we, as consumers, control the devices that we buy. Instead, consumers, farmers, small businesses all find that manufacturers exert post-sale control over these devices, often in ways that frustrate repair.

Repair is as old as humanity. Our Paleolithic ancestors repaired hand axes and other primitive tools. As our technologies have grown more complex from the Bronze Age through the Renaissance to the high-tech devices that we all have in our pockets here today, repair has always kept pace.

Today, manufacturers are employing a range of strategies that restrict repair—from their hardware and software design choices to clampdowns on secondary markets. We also, troublingly, see attempts to leverage IP rights as tools to restrict repair.

These efforts are a major departure from the historical treatment of repair under the law. The right to repair is not only consistent with nearly two centuries of IP law in the United States, but it reflects half a millennium of common-law property doctrine that rejects post-sale restrictions on personal property.

As early as the 15th century, English property law recognized that, once a property owner sells an item, efforts to restrain how the new owner of that item can use it are inconsistent with the essential nature of private property and obnoxious to public policy.

As the Supreme Court has repeatedly recognized, IP law's respect for the property interest of purchases of copyrighted and patented goods was profoundly shaped by this common-law tradition. In 1850, the Supreme Court recognized that the repair of a patented machine reflected, quote,

> . . . no more than the exercise of that right of care which everyone may use to give duration to that which he owns.

A century later, the Court held that the repair of a convertible car roof was justified as an exercise of, quote, "the lawful right of the property owner to repair his property."

Just a few years ago, the Court reaffirmed the rejection of post-sale restrictions under patent law in *Impression Products* v. *Lexmark*, a case about refurbishing printer ink cartridges.

Copyright law, not surprisingly, has had fewer occasions to consider repair restrictions, but, as early as 1901, the Seventh Circuit recognized, quote, "a right of repair or renewal," under U.S. copyright law.

When a publisher sued to prevent a used book dealer from repairing and replacing damaged components of books, the Court said quote,

> The right of ownership in the book carries with it and includes the right to maintain the book as nearly as possible in its original condition.

A century after that, Congress itself acknowledged repair as a right that owners enjoy, regardless of copyright restrictions, when it enacted Section 117(c) of the Copyright Act. That provision was designed to undue a Ninth Circuit decision that allowed copyright holders to prevent third-party repairs of computers. Section 117(c) explicitly permits owners of machines to make copies of computer programs in the course of maintenance or repair.

Finally, the U.S. Copyright Office, over the last decade, has repeatedly concluded that diagnosis, repair, and maintenance activities are noninfringing when it comes to vehicles, consumer devices, and medical equipment.

So, the right to repair is firmly rooted in basic principles of U.S. IP law. IP law can and does continue to interfere with repair. Kyle talked about overbroad copyright claims over service manuals that limit access to crucial information. Section 1201 of the DMCA makes it practically impossible for consumers to exercise their lawful right to repair a wide range of devices—from tractors to home electronics—even though the Copyright Office says those activities are noninfringing. The weakening of standards for design patents allow firms to choke off the supply of replacement parts needed to repair vehicles, home appliances, and other devices.

So, I thank you all for your interest and your leadership on this issue, and I'm looking forward to your questions.

[The prepared statement of Mr. Perzanowski follows:]

Before the United States House Committee on the Judiciary
Subcommittee on Courts, Intellectual Property, and the Internet

118th Congress

Hearing, Is There a Right to Repair?

July 18, 2023

Testimony and Statement of Aaron Perzanowski
Thomas W. Lacchia Professor of Law
University of Michigan Law School

Chairman Issa, Ranking Member Johnson, and Members of the Subcommittee:

Thank you for the opportunity to offer testimony addressing the relationship between intellectual property (IP) law and restrictions on repair. For the last fifteen years, I have been teaching, writing, and speaking about intellectual property law. The primary focus of my academic research has been the erosion of consumers' personal property rights in the digital economy.[1] Over the last decade, the right to repair has emerged as a central challenge to the notion that we control the devices we buy. Instead, consumers, farmers, and small businesses across the country find that manufacturers exert post-sale control over these devices, often in ways that frustrate repair. My most recent book, *The Right to Repair*, explores these issues at length, with a particular focus on the ways in which IP law can either exacerbate or alleviate the difficulties facing owners who want to repair their devices.[2] Despite efforts by manufacturers to stymie repair, the right to repair is broadly consistent with nearly two centuries of IP law.

In part because of this long history within our legal system, consumers have strong expectations when it comes to their right to repair the devices they own. My own research, which is consistent with survey data and state-level referenda on repair, shows that more than 80% of consumers believe they should be able to repair their devices themselves or rely on the repair shop of their choice.[3] Indeed, consumers who turn to independent providers are more satisfied with their repair services than those who rely on manufacturers for repairs.[4] Not surprisingly, right to repair legislation is overwhelmingly popular, and support for this policy is consistently

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[1] Aaron Perzanowski & Jason Schultz, *The End of Ownership* (MIT Press 2016).

[2] Aaron Perzanowski, *The Right to Repair: Reclaiming the Things We Own* (Cambridge University Press 2022).

[3] Aaron Perzanowski, *Consumer Perceptions of the Right to Repair*, 96 Indiana Law Journal 361 (2021).

[4] *Should You Repair or Replace that Product? How to Save Money on Appliances, Electronics, and Lawn and Yard Gear*, Consumer Reports (Jan. 2014), www.consumerreports.org/cro/maga zine/2014/02/repair-or-replace/index.htm.

high across demographic and party lines.[5] As a letter from 28 State Attorneys General recently noted, "The Right-to-Repair is a bipartisan issue that impacts every consumer, household, and farm in a time of increasing inflation."[6]

As a result, state legislatures across the country have taken up right to repair legislation. Thirty states have introduced such bills this year alone.[7] Colorado, Massachusetts, Minnesota, and New York have enacted laws recognizing consumers' right to repair in recent years.[8] Despite those efforts, repair restrictions call out for a federal solution. Markets for vehicles, home appliances, and electronics are national in scope. While states are empowered to enact laws that safeguard the interests of their citizens, federal legislation promises consistency and uniformity that would benefit consumers, manufacturers, and repair providers. Moreover, since some repair restrictions are the byproduct of aggressive assertions of federal IP rights, Congress can provide much needed leadership by crafting sensible solutions that protect the rights of consumers while recognizing the need for balanced IP protections.

The History of Repair

The practice of repair is as old as humanity. Our Paleolithic ancestors repaired hand axes and other primitive tools.[9] As our technologies grew more complex, so did our methods of repair. From the Bronze Age through the Renaissance, whatever technology we dreamed up, new methods of repair followed just a step behind. Eventually, industrialization and the introduction of interchangeable parts made repair easier and more reliable than ever before.

From a modern perspective, it's difficult to imagine the breakthrough interchangeable parts represented. In 1785, Thomas Jefferson—then United States Minister to France—wrote about the pioneering work of gun-smith Honoré Blanc, which he witnessed firsthand: "He presented me the parts of fifty locks taken to pieces, and arranged in compartments. I put several together myself, taking pieces at hazard as they came to hand, and they fitted in the most perfect manner."[10] Sixteen years later, President-elect Jefferson, watched a similar exhibition by Eli Whitney, who used a screwdriver to attach ten different locks to a single musket. He then disassembled the locks and put them back together, mixing and matching the parts. This interchangeability allowed for quick and reliable battlefield repairs.

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[5] *Right to Repair: A Nationally Representative Multi-Mode Survey*, Consumer Reports, https://article.images.consumerreports.org/prod/content/dam/surveys/Consumer_Reports_Right_to_Repair_Survey_2021.

[6] Letter from State Attorneys General to Representative McMorris Rodgers, Representative Pallone, Senator Cantwell and Senator Cruz, https://oag.ca.gov/system/files/attachments/press-docs/3.24.2023 Right to Repair Ltr. to Congress FINAL.pdf

[7] *Pennsylvania Becomes 30th State to Put Forward Right to Repair Legislation*, U.S. PIRG, https://pirg.org/updates/pennsylvania-becomes-30th-state-to-put-forward-right-to-repair-legislation/

[8] Id.

[9] Ron Shimelmitz, Michael Bisson, Mina Weinstein-Evron & Steven L. Kuhn, *Handaxe Manufacture and Re-Sharpening throughout the Lower Paleolithic Sequence of Tabun Cave*, 428 Quaternary International 118 (2017).

[10] Giles Slade, *Made to Break: Technology and Obsolescence in America* (2006).

In time, those same principles were applied to mass produced consumer goods. In 1908, Henry Leland, the founder of both Cadillac and Lincoln, updated Blanc's demonstration. Three Cadillacs were disassembled, their parts intermingled, and then reassembled and driven some 500 miles without incident.[11] That same year, Henry Ford began production of the Model T. Not only did Ford embrace interchangeability as a production strategy, but the company understood that widely available and easily replaced parts made its cars more valuable. Every Ford included a toolkit and a straightforward repair manual that walked owners through basic fixes.[12]

Over the course of the twentieth century, assembly lines became so efficient that the calculus around repair and durability shifted. Modern manufacturing meant plummeting assembly times and labor costs. Companies quickly came to appreciate that product durability wasn't always in their economic self-interest. Demand needed to keep up with supply, so manufacturers found ways to induce consumption and discourage repair. As early as the 1920s, firms were exploring the strategies that would eventually become known as "planned obsolescence."

Beginning in 1924, the Phoebus group—spearheaded by General Electric and comprising the leading lightbulb manufacturers of France, Germany, Hungary, Japan, the Netherlands, and the United Kingdom—set out to reduce the lifespan of the world's lightbulbs.[13] Over the course of just eight years, the average operating time of bulbs dropped from nearly 2,000 hours to a mere 1,200. From its base in Geneva, Phoebus systematically evaluated the bulbs produced by its members, fining those whose products exceeded the agreed-upon lifespan limits. Around the same time, as revealed in an internal memo uncovered by the Department of Justice, GE set out to reduce the life of its flashlight bulbs by two-thirds, a move it expected to increase sales by 60 percent.[14]

In the post-World War II era, manufacturers devised techniques to discourage repair of consumer goods. As detailed by Vance Packard, they included steam irons that "could be repaired only by breaking [them] apart and drilling out the screws," toasters "so riveted together" that they required almost an hour just to disassemble, and appliances that had to be fully dismantled just to swap out a 10-cent part.[15] By the 1950s, some were openly endorsing "death dating," the practice of designing products to fail after a short period of use.[16] Packard also described efforts to tightly control information about repair. Both consumers and independent repair providers were frustrated by appliance makers' refusals to share service manuals. Instead, as one consumer wrote,

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[11] Office of Technology Assessment, *Global Standards: Building Blocks for the Future* (1992); Harold C. Livesay, *American Made: Shaping the American Economy* (2016).

[12] James P. Womack, Daniel T. Jones & Daniel Roos, *The Machine that Changed the World* (1990); Royce Peterson, *The 1911 Model T Ford Tool Kit, Model T Ford Fix*, https://modeltfordfix.com/the-1911-model-t-ford-tool-kit/.

[13] Markus Krajewski, *The Great Lightbulb Conspiracy*, IEEE Spectrum, https://spectrum.ieee.org/tech-history/dawn-of-electronics/the-great-lightbulb-conspiracy.

[14] Letter from L.C. Porter to M.I. Sloan, Nov. 1, 1932, U.S.v.G.E. Civil Action No. 1364, 82 F. Supp. 753 Ex. 1860-G.

[15] Vance Packard, *The Waste Makers* (1960).

[16] Id.

those documents were "censored as if they contained obscene material."[17] These early techniques were precursors to the more sophisticated strategies we see firms deploy today.

Current Strategies that Frustrate Repair

Today, manufacturers employ a number of strategies that restrict repair, ranging from hardware and software design to restrictions on access to secondary markets. Taken together these are powerful tools that frustrate owners who want to repair the devices they own.

Hardware design is perhaps the most obvious means by which manufacturers' decisions can limit repair. Wireless headphones that are glued and soldered together, laptops secured with exotic screws, and washing machines that require full disassembly to replace simple ball bearings are all examples of the ways in which hardware design makes repair less convenient, more expensive, and sometimes impossible.

Modern devices from cars to home appliances also incorporate software code, network connectivity, and data-generating sensors that offer manufacturers new opportunities to shape, restrict, and interfere with consumers' control over the products they own.[18] If the functionality of a device depends on software, manufacturers can use that code to impose any number of restrictions on whether, how, and by whom that functionality can be restored. Likewise, access to performance and diagnostic data generated by a device is often necessary for repairs. But when that data is communicated through channels accessible only by the manufacturer, repair becomes more difficult, if not impossible, for independent providers. These digital tethers enable a degree of control over post-sale consumer behavior, including repair, that the law has traditionally not countenanced. This trend represents a major shift in the relationship between consumers and the devices they own.

Software can be used to detect third-party repairs and disable consumers' devices. For example, thousands of iPhone owners were in 2016 shocked when their devices would not start up, and their contacts, photos, and other data were inaccessible.[19] Phones that had been repaired by third parties and worked normally for weeks or even months were suddenly "bricked" after an Apple software update that detected a replacement connector between the device's home button and its Touch ID sensor. When such a connector was found, the software instructed the phone to stop working altogether. After a public backlash and a class-action lawsuit, Apple eventually restored the functionality of affected iPhones. A year later, another Apple software update secretly slowed down the processors of phones will older batteries.[20] Once the scheme was

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[17] Id.

[18] Chris Jay Hoofnagle, Aniket Kesari & Aaron Perzanowski, *The Tethered Economy*, 87 Geo. Wash. L. Rev. 783 (2019).

[19] Miles Brignall, *"Error 53" Fury Mounts as Apple Software Update Threatens to Kill Your iPhone 6*, The Guardian (Feb. 5, 2016), www.theguardian.com/money/2016/feb/05/error-53-apple-iphone-software- update-handset-worthless-third-party-repair.

[20] Adi Robertson, *Apple Agrees to $500 Million Settlement for Throttling Older iPhones*, Verge (Mar. 2, 2020), www.theverge.com/2020/3/ 2/21161271/apple-settlement-500-million-throttling-battery gate-class-action-lawsuit.

discovered, Apple offered discounted battery replacements—a decision that CEO Tim Cook later blamed for flagging iPhone sales.[21]

Troublingly, we see software being deployed to essentially undo the very idea of interchangeable parts. Microsoft and Sony both pair the optical drives in their video game consoles to the devices' motherboards. As a result, if a consumers' optical drive fails, they can't replace it with an identical part.[22] Similarly, John Deere tractors won't recognize properly-installed genuine replacement parts until they have been initialized, at considerable expense to farmers, by an authorized Deere technician. Hospitals contend with similar software restrictions when trained medical technicians attempt to repair ventilators and other crucial equipment.

Other devices, like Epson printers are programmed to fail even in the absence of any actual problem with the device.[23] Some printers collect excess ink in a pad or sponge. Rather than allowing owners to replace those pads, which only cost a few dollars, Epson estimates the number of pages the device can print before saturation. Once it reaches that fixed number of pages, the printer will display a message stating that is has "reached the end of its service life" and simply refuse to operate.

Aside from hardware and software design, a number of additional strategies can limit the availability and feasibility of repair:

- Withholding replacement parts from consumers and independent repair shops;[24]
- Authorized repair networks that restrict which repairs providers are permitted to perform;[25]
- Agreements between manufacturers and retailers like Amazon that restrict the availability of refurbished devices;[26] and
- Refusals to allow advertisements from independent repair providers, like the one imposed by Google.[27]

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[21] Jason Koebler, *Tim Cook to Investors: People Bought Fewer New iPhones Because They Repaired Their Old Ones*, Vice (Jan. 2, 2019), www.vice.com/en_us/article/zmd9a5/tim-cook-to-investors-people-bought-fewer-new-iphones-because-they-repaired-their-old-ones.

[22] Kyle Wiens, *Copyright Law Is Bricking Your Game Console. Time to Fix That*, Wired (Dec. 11, 2020), www.wired.com/story/copyright-law-is-bricking-your-game-console-time-to-fix-that.

[23] Scharon Harding, *Epson's Bricked Printers Highlight the Industry's Repairability Problem*, Ars Technica (Aug. 12, 2022), https://arstechnica.com/gadgets/2022/08/epsons-bricked-printers-highlight-the-industrys-reparability-problem.

[24] Elizabeth Chamberlain, *How Nikon Is Killing Camera Repair*, iFixit (Feb. 14, 2012), www.ifixit.com/News/1349/how-nikon-is-killing-camera-repair.

[25] Jason Koebler, *Do You Know Anything about Apple's "Authorized Service Provider" Program?*, Vice (Mar. 16, 2017), www.vice.com/en_us/article/ypkqxw/do-you-know-anything-about-apples-authorized-service-provider-program.

[26] Nick Statt, *Apple and Amazon Cut a Deal that Upended the Mac Resale Market*, Verge, (May 21, 2019), www.theverge.com/2019/5/21/18624846/amazon-marketplace-apple-deal-iphones-mac-third-party-sellers-john-bumstead.

[27] Michael Kan, *Google Ad Policy Change Leaves Third-Party Repair Industry in a Lurch*, PC (Aug. 8, 2019), www.pcmag.com/news/ google-ad-policy-change-leaves-third-party-repair-industry-in-a-lurch.

As discussed in more detail below, IP law offers another set of tools that manufacturers can rely on to discourage and control repair. Those efforts run counter to a long history of legal skepticism towards post-sale restrictions on repair.

The Legal Basis for the Right to Repair

As a legal principle, the right to repair is firmly rooted in half a millennium of common law property doctrine and has been explicitly recognized under U.S. intellectual property law since the mid-nineteen century. The law is generally hostile to post-sale restrictions, including limitations on repair. For centuries, that has been true as a matter of both personal property and intellectual property law. This hostility grows out of deep concerns over the alienability of goods in the stream of commerce and respect for owners' autonomy to use the products they purchase as they see fit.

As early as the 15th century, English property law recognized that once an owner of "a horse, or of any other chattel" sells that item, "his whole interest ... is out of him."[28] Having transferred personal property rights to the buyer, conditions on the alienation of that property are void as "against Trade and Traffique."[29] Following that tradition, courts in the United States have resisted downstream restrictions on personal property on the grounds that "they offend against the ordinary and usual freedom of traffic in chattels."[30] Such restraints are inconsistent with "the essential incidents of a right of general property in movables, and . . . obnoxious to public policy, which is best subserved by great freedom of traffic in such things as pass from hand to hand."[31] This rejection of efforts to impose post-sale restrictions on personal property has not been limited to restrictions on alienation. More broadly, courts spurned servitudes on personal property that would have allowed a seller to restrict the post-sale use of the goods in question.[32] Such restrictions create a host of problems at odds with an efficient market. They typically lack sufficient notice to both present and future buyers, limit the valuable uses to which scarce resources can be put, and impose significant information costs on those who come into contact with potentially restricted goods.[33]

This aversion to post-sale restrictions extends to attempts to impose limitations through assertions of IP rights as well. Although copyright, patent, and trademark law constrain the use of personal property to some extent, they nonetheless incorporate a core skepticism with respect to post-sale restrictions that interfere with downstream alienation and use. The principle of

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[28] Edward Coke, *Institutes of the Laws of England* § 360, p. 223 (1628). Coke drew on the work of the 15th century writer, Littleton. *See* Charles M. Gray, *Two Contributions to Coke Studies*, 72 U. Chi. L. Rev. 1127, 1135 (2005).

[29] Coke, *supra* note 1 at §360.

[30] John D. Park & Sons Co. v. Hartman, 153 F. 24, 39 (6th Cir. 1907).

[31] Id.

[32] Zechariah Chafee, Jr., *The Music Goes Round and Round: Equitable Servitudes and Chattels*, 69 Harvard L. Rev. 1250, 1261 (1956); Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 Yale L.J. 1, 8 (2000); Molly Shaffer Van Houweling, *The New Servitudes*, 96 Geo. L.J. 885, 897–8 (2008).

[33] Id.

exhaustion holds that when an embodiment of a work protected by some intellectual property right passes from the rights holder to a consumer, the rights holder's power over that particular embodiment is diminished.[34] As the Supreme Court has recognized in recent years, that principle is a direct outgrowth of the centuries-old tradition outlined above.[35]

Under U.S. copyright law, the first sale doctrine is the best known exhaustion rule.[36] It provides that the owner of a lawful copy of a work is free to sell or otherwise dispose of that copy as they see fit, regardless of the objections of the copyright holder.[37] The first sale doctrine is the legal basis for public libraries, used record stores, and other secondary markets for copyrighted goods. Courts have long understood it to be copyright law's reflection of the common law aversion to impeding the free flow of goods.[38] In its most recent first sale case, the Supreme Court held that goods were subject to the rule regardless of where they were first manufactured.[39] That case directly concerned the importation of text books for sale in the United States, but the Court recognized the stakes for other products, including automobiles and consumer electronics:

> Technology companies tell us that "automobiles, microwaves, calculators, mobile phones, tablets, and personal computers" contain copyrightable software programs or packaging. Many of these items are made abroad with the American copyright holder's permission and then sold and imported (with that permission) to the United States. A geographical interpretation [of § 109 of the Copyright Act] would prevent the resale of, say, a car, without the permission of the holder of each copyright on each piece of copyrighted automobile software.... Without that permission a foreign car owner could not sell his or her used car.[40]

For well over a century U.S. copyright law has acknowledged a right to repair as an outgrowth of the exhaustion principle. In 1901, the American Book Company sued George

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[34] Aaron Perzanowski& Jason Schultz, *Reconciling Personal and Intellectual Property*, 90 Notre Dame L. Rev. 1211 (2015).

[35] Kirtsaeng v. John Wiley & Sons, Inc., 568 U.S. 519, 538–39 (2013) ('The 'first sale' doctrine is a common-law doctrine with an impeccable historic pedigree."); Impression Prod., Inc. v. Lexmark Int'l, Inc., 137 S. Ct. 1523, 1526, 198 L. Ed. 2d 1 (2017) ("The exhaustion rule marks the point where patent rights yield to the common law principle against restraints on alienation.").

[36] Copyright law's recognition of the rights of owners is not limited to the first sale doctrine. It also permits owners to publicly display the copies they own without copyright holder permission, an essential limitation for museums. 17 U.S.C. § 109(c). And section 117 of the Copyright Act allows owners of copies of software to reproduce them as necessary to run the software and for archival purposes, to adapt them to run in new software or hardware environments, and to transfer copies of the software they purchase so long as they delete the copies in their possession. Id. § 117.

[37] 17 U.S.C. § 109(a).

[38] Sebastian Int'l, Inc. v. Consumer Contacts (PTY) Ltd., 847 F.2d 1093, 1096 (3d Cir. 1988); Burke & Van Heusen, Inc. v. Arrow Drug, Inc., 233 F. Supp. 881, 883–84 (E.D. Pa. 1964)

[39] Kirtsaeng, 568 U.S. 519.

[40] Id. at 542 (internal citations omitted).

Doan, a used bookseller.[41] Doan acquired "soiled and torn" used children's books, some with damaged or missing covers.[42] To prepare them for resale, Doan repaired the books, in some cases reproducing missing covers "in exact similitude" of the originals.[43] The American Book Company alleged copyright infringement, but the Court of Appeals for the Seventh Circuit rejected the claim. As the owner of the books, Doan enjoyed a "right of repair or renewal" that allowed him to replace missing components and fashion new ones, even if they were "exact imitation[s] of the original."[44] According to the court, the "right of ownership in the book carries with it and includes the right to maintain the book as nearly as possible in its original condition."[45] To deny that right would have been "intolerable and odious."[46] The right to repair, in short, is an inherent feature of ownership.

Nearly a century later, Congress acknowledged repair as a right owners enjoy regardless of copyright restrictions when it rejected the outcome of a case decided by the Ninth Circuit. In that case, MAI Systems, a company that made computers and software, successfully sued Peak, an independent service provider that repaired MAI devices, for copyright infringement.[47] The court agreed with MAI that by merely powering up one of its machines, Peak created unlawful copies of MAI's software in the device's random access memory (RAM).[48] In response to this flawed holding, Congress enacted § 117(c) of the Copyright Act, which explicitly permits owners or lessees of machines to make–or to authorize providers to make–copies of computer programs in the course of maintenance or repair.[49] Since then, the U.S. Copyright Office has repeatedly concluded that diagnosis, repair, and maintenance activities are "generally noninfringing."[50]

Patent law has its own long history of embracing repair as an inherent right of owners of patented devices. Under the patent exhaustion doctrine, the sale of a patented article ends the patentee's control over its sale, use, or repair. This fundamental limitation on the scope of a patentee's rights dates back to the mid-1800s. As the Court then understood, "when the machine passes to the hands of the purchaser, it is no longer within the limits of the monopoly. It passes

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[41] Doan v. American Book Co., 105 F. 772 (7th Cir. 1901).

[42] Id. at 777.

[43] Id. at 778.

[44] Id at 776.

[45] Id. at 777.

[46] Id.; *see also* Bureau of National Literature v. Sells, 211 F. 379, 380 (W.D. Wash. 1914).

[47] MAI Sys. Corp. v. Peak Computer Inc., 991 F.2d 511 (9th Cir. 1993).

[48] The Ninth Circuit tersely concluded in a footnote that "[s]ince MAI licensed its software, the Peak customers do not qualify as 'owners' of the software." Id. at 519, n5. *But see* Cartoon Network v. CSC Holdings, Inc., 536 F.3d 121, 130 (2d Cir. 2008) (holding temporary buffer copies are not "copies" under the Copyright Act).

[49] 17 U.S.C. § 177(c).

[50] Register of Copyrights, *Section 1201 Rulemaking: Eight Triennial Proceeding to Determine Exemptions to the Prohibition on Circumvention, Recommendation of the Register of Copyrights* (2021) (noting that "diagnosis, maintenance, and repair of software-enabled consumer devices are likely to be fair uses where the purpose is to restore device functionality"); U.S. Copyright Office, *Software-Enabled Consumer Products* 35 (2016) ("Properly construed, section 117 should adequately protect most repair and maintenance activities").

outside of it, and is no longer under the protection of the act of Congress . . .. [and] becomes [the owner's] private, individual property."[51] Just a few years ago, the Court reaffirmed in *Impression Products v. Lexmark* that "once a patentee sells an item ... the patent laws provide no basis for restraining the use and enjoyment of the product. Allowing further restrictions would run afoul of the 'common law's refusal to permit restraints on the alienation of chattels.'"[52] To illustrate the practical importance of that rule, the Court turned to an example drawn from the auto repair industry:

> Take a shop that restores and sells used cars. The business works because the shop can rest assured that, so long as those bringing in the cars own them, the shop is free to repair and resell those vehicles. That smooth flow of commerce would sputter if companies that make the thousands of parts that go into a vehicle could keep their patent rights after the first sale. Those companies might, for instance, restrict resale rights and sue the shop owner for patent infringement. And even if they refrained from imposing such restrictions, the very threat of patent liability would force the shop to invest in efforts to protect itself from hidden lawsuits. Either way, extending the patent rights beyond the first sale would clog the channels of commerce, with little benefit from the extra control that the patentees retain.[53]

As early as 1850, the Court recognized that repair of a patented machine was a legally privileged act of "restoration" that reflected "no more than the exercise of that right of care which everyone may use to give duration to that which he owns."[54] A century later, the Court underscored this principle when it held that the replacement of the fabric cover of a convertible car roof was lawful as a matter of patent exhaustion.[55] As the Court explained, the "mere replacement of individual unpatented parts, one at a time, whether of the same part repeatedly or different parts successively, is no more than the lawful right of the owner to repair his property."[56]

Like copyright and patent law, trademark law also recognizes the principle of exhaustion and facilitates the repair of goods. Once a product bearing a trademark is sold, the mark owner's ability to control post-sale use and transfer is severely limited.[57] Not only can the owner of a trademarked good resell it, they can repair it. In a case brought by Champion in 1947, the Supreme Court held that so long as reconditioned spark plugs were accurately labeled as "repaired," the reseller had no obligation to remove the Champion mark.[58] More recently, courts

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[51] Bloomer v. McQuewan, 55 U.S. (14 How.) 539 (1852).

[52] Impression Prod., Inc. v. Lexmark Int'l, Inc., 137 S. Ct. 1523 (quoting Kirtsaeng, 568 U.S. at 538)

[53] Id. at 1532.

[54] Wilson v. Simpson, 50 U.S. 109 (1850).

[55] Aro Mfg. Co., Inc. v. Convertible Top Co., 365 US 336 (1961).

[56] Id. at 346.

[57] Sebastian Int'l, Inc. v. Longs Drug Stores Corp., 53 F.3d 1073, 1074 (9th Cir. 1995) (the right "to control distribution of its trademarked product does not extend beyond the first sale of the product").

[58] Champion Spark Plug Co. v. Sanders, 331 U.S. 125 (1947).

have endorsed the right of refurbishers to reapply trademarked logos to products before reselling them, on the condition that they were properly labeled.[59]

Taken together, these longstanding legal rules support the notion that a right to repair one's personal property is an inherent incident of ownership. These doctrines have helped secure the rights of property owners to repair the things they own as they see fit, free from restrictions imposed by manufacturers and retailers. But as discussed below, current interpretations and applications of IP law can nonetheless interfere with repair, in a marked departure from these established principles.

Copyright & Repair

Copyright law implicates the right to repair in two primary ways. First, manufacturers have repeatedly attempted to leverage copyright as a tool to control information about replacement parts and repair procedures. Second, the software necessary to operate, diagnose, and repair devices is often protected by copyright law, allowing manufacturers to claim that bypassing digital locks that restrict access to this code for repair purposes is unlawful. These claims are based on over-broad interpretations of copyright law. When given the opportunity to evaluate those claims, courts and the Copyright Office have repeatedly rejected them.

Part Numbers & Manuals

Beginning in the 1980s, manufacturers began asserting copyright in numbering systems for replacement parts in an effort to steer consumers away from third-party parts. Facing competition from independent part manufacturers, lawn care equipment maker Toro sued R&R Products, alleging it had unlawfully copied Toro's part numbering system. R&R marketed its products in a mail-order catalog that listed Toro's part name and number alongside R & R's replacement part and price. The court rejected Toro's copyright assertion because its system of arbitrarily assigning a random number to each replacement part failed to satisfy copyright's minimal standard for creativity.[60]

Likewise, the court rejected ATC's copyright claims based on its parts catalog, which featured illustrations of disassembled vehicle transmissions. Each image showed the various parts, their physical relationship within the assembly, and their part numbers. When a new competitor, Whatever It Takes, launched a similar catalog with the same part numbers, ATC sued.[61] ATC argued that its numbering system, entailed judgment and creativity. Nonetheless, the court held that the system was unprotectable since ATC's taxonomy left it little discretion as to the number of any individual part. Moreover, the court rejected ATC's claim that Whatever It Takes copied its illustrations. Since those drawings "were intended to be as accurate as possible" they were "the antithesis of originality."

More recently, manufacturers have taken a new tack. Rather than part numbers, they've claimed copyright in repair manuals. These documents contain useful information for diagnosing and repairing various common failures. They might provide step-by-step instructions for

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[59] Nitro Leisure Prod., L.L.C. v. Acushnet Co., 341 F.3d 1356, 1357 (Fed. Cir. 2003).

[60] Toro Co. v. R & R Prod. Co., 787 F.2d 1208, 1213 (8th Cir. 1986).

[61] ATC Distribution Grp., Inc. v. Whatever It Takes Transmissions & Parts, Inc., 402 F.3d 700, 703 (6th Cir. 2005). *See also* Southco, Inc. v. Kanebridge Corp., 258 F.3d 148 (3d Cir. 2001).

disassembling a device or replacing broken components, saving consumers time, money, and frustration. In many instances, manuals help decipher otherwise inscrutable error codes necessary to diagnose and repair electronics, home appliances, vehicles, and medical equipment.

In 2012, Toshiba demanded the removal of repair manuals for hundreds of laptop models from a free website,[62] citing the copyright in its manuals. By reproducing and displaying them online, the company argued, Hicks was infringing its exclusive rights. And in 2020, iFixit announced its Medical Device Repair Database, a collection of repair manuals for more than 13,000 ventilators, anesthesia systems, and respiratory analyzers, among other devices.[63] A number of manufacturers, including Steris, an Ohio-based manufacturer of medical sterilization equipment, have sent demands to iFixit to remove these materials.[64] But there are good reasons to doubt that a court would side with these efforts to restrict access to repair information.

First, most of the content of repair manuals is simply not subject to copyright.[65] Part names and numbers, as well as simple illustrations are beyond the scope of copyright protection. Likewise, the methods and processes of repair and diagnosis contained in manuals cannot be protected by copyright law.[66] Even if assuming step-by-step, mechanical descriptions of uncopyrightable processes meet copyright's originality requirement, they would almost certainly fall within the merger doctrine, a principle that recognizes some ideas can only be expressed in a handful of ways. Aside from minor variations in word choice, any clear, accurate description of such a process would be nearly identical to the formulation contained in a manual. Under those circumstances, the idea and its expression are considered merged, and neither is subject to copyright.[67]

That barrier aside, the reproduction and distribution of manuals would likely constitute a fair use. Among the key factors courts consider in fair use cases is "the purpose and character of the use."[68] That's particularly true when manuals are made available for free to facilitate repair. A website that collects and organizes hundreds of manuals in a single location would also likely be engaged in a transformative use by creating an information location tool. In addition, the factual nature of the copyrighted works at issue would favor a fair use determination. And to the extent a copyright holder can identify any market harm from the distribution of manuals, that harm is not

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[62] *Tim's Laptop Service Manuals*, Future Proof, www.tim.id.au/blog/tims-laptop-service-manuals/#toc-toshiba; Mike Masnick, *Toshiba: You Can't Have Repair Manuals Because They're Copyrighted And You're Too Dumb To Fix A Computer*, Techdirt, 12 November 2012, www.techdirt.com/articles/20121110/22403121007/toshiba-you-cant-have-repair-manuals-because-theyre-copyrighted-youre-too-dumb-to-fix-computer.shtml.

[63] Kyle Wiens, *Introducing the World's Largest Medical Repair Database, Free for Everyone*, iFixit, 19 May 2020, www.ifixit.com/News/41440/introducing-the-worlds-largest-medical-repair-database-free-for-everyone.

[64] *Letter from Steris to iFixit 5-16-2020*, Electronic Frontier Foundation, www.eff.org/document/letter-steris-ifixit-5-16-2020.

[65] *Maintenance Manual: Harmony LA Surgical Lighting and Visualization System*, iFixit, www.ifixit.com/Document/IDkC64cS1RNYhqYc/Steris+Harmony+LA+Surgical+Lighting+Maintenance+Manual.pdf.

[66] 17 U.S.C. § 102(b).

[67] Morrissey v. Proctor & Gamble Co., 379 F.2d 675 (1st Cir. 1967).

[68] 17 U.S.C. § 107.

attributable to the value of the manuals' creative expression, but instead is traceable to the unprotected facts, methods, and processes they contain. Indeed, when Gulfstream sued a firm that copied and distributed its aircraft manuals, the court determined that "granting copyright protection under these facts would not serve the purposes of copyright law" and concluded that "as a matter of law that [the defendant] has made a fair use of Gulfstream's manuals."[69]

Circumvention & Software Tools

Software introduces another avenue for manufacturers to enlist copyright law to limit repair. Software code is essential to the functioning, diagnosis, and repair of both modern consumer goods and industrial equipment. Often, manufacturers restrict access to that software code using technological protection measures, or what is more commonly known as digital rights management (DRM) technology.

In 1998, Congress enacted the Digital Millennium Copyright Act (DMCA). Section 1201 of the DMCA makes it unlawful to circumvent technological protection measures that restrict access to copyrighted works, including software.[70] In other words, it is illegal to remove or bypass digital locks meant to restrict access to or copying of copyrighted material, including software. In addition, § 1201 prohibits the manufacture, sale, or distribution of technological tools meant to facilitate or enable acts of circumvention.[71] These provisions were intended to encourage traditional copyright holders—like movie studios, record labels, and book publishers—to make their works available online.[72] By providing some additional layers of legal protection for DRM, the law was designed to allay the reasonable fears of copyright holders, who worried that digital distribution would expose them to widespread infringement.

Despite these goals, manufacturers of printers, garage door openers, and other devices quickly realized that § 1201 offered them the chance to limit competition for aftermarket parts and service. Courts rebuffed those early efforts to expand the DMCA's scope.[73] But the risk of broad applications of § 1201 remains a concern for repair providers and part makers. Today, manufacturers continue to rely on digital locks to restrict access to the embedded code that controls devices from smartphones to cars. Because that code is often necessary for diagnosis and repair, those protection measures pose practical hurdles for consumers and repair providers. Section 1201 compounds those difficulties by introducing legal liability for removing or bypassing the locks on the devices.

One court rightly rejected an attempt to use § 1201 to shut down a repair provider.[74] StorageTek sold data storage systems. Those systems were made up of a number of "silos," each containing a robot arm that inserted tape cartridges into various drives. Each silo was operated by

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[69] Gulfstream Aerospace v. Camp Systems Intern, 428 F. Supp. 2d 1369, 1381 (S.D. Ga. 2006).

[70] 17 U.S.C. § 1201.

[71] Id.

[72] Brian T. Yeh, *The Digital Millennium Copyright Act: Exemptions to the Prohibitions to the Prohibition of Circumvention*, Congressional Research Service (2008).

[73] Chamberlain Group, Inc. v. Skylink Technologies, Inc., 381 F.3d 1178 (Fed. Cir. 2004), Lexmark International, Inc. v. Static Control Components, Inc., 387 F.3d 522 (6th Cir. 2004).

[74] Storage Tech. Corp. v. Custom Hardware Eng'g & Consulting, Inc., 421 F.3d 1307 (Fed. Cir. 2005)

a control unit, and collectively the system was controlled by a networked management unit. Those units ran StorageTek's software, including diagnostic programs, which it claimed to license to system owners. StorageTek sued Custom Hardware Engineering & Consulting (CHE), a competing repair provider, alleging that CHE circumvented StorageTek's protection measures to access its software code in the process of repairing customers' equipment. StorageTek's software generated error codes, which CHE needed to capture in order to diagnose faulty machines. To access those codes, CHE had to override GetKey, a password protection scheme StorageTek created to lockdown its systems. At first, CHE used a tool that generated multiple passwords to crack GetKey through brute force. Later, CHE learned how to mimic the signals sent to the control unit to divulge error codes. StorageTek alleged that both techniques circumvented its access controls.

The Federal Circuit was not persuaded. In a prior case, the court held that to violate § 1201, circumvention must have some plausible connection to an act of copyright infringement.[75] Without that "critical nexus," circumvention is perfectly lawful. Applying the same logic to StorageTek's claim, the court was satisfied that there was little chance circumvention would lead to infringement since CHE was entitled to make copies of the software under § 117 of the Copyright Act. While that reasoning would seem to protect owners and repair providers from circumvention liability in many circumstances, other courts have declined to adopt the Federal Circuit's nexus requirement, opening repair providers up to potential liability.[76]

When it enacted § 1201, Congress recognized its potential for unintended consequences. So it called on the Copyright Office and the Librarian of Congress to conduct a rulemaking every three years to identify noninfringing uses that are likely to be adversely affected by the anticircumvention provision. Those uses are then protected by temporary exemptions.[77] In 2015, the Librarian adopted an exemption permitting the circumvention of DRM that restricts access to software that controls "motorized land vehicles" for the purpose of diagnosis and repair.[78] In the next rulemaking, that exemption was expanded to include software that controls a "smartphone or home appliance or home system, such as a refrigerator, thermostat, HVAC or electrical system."[79] In 2021, the repair exemption was expanded again to include software-enabled consumer devices, video game consoles, and medical devices. Echoing its earlier conclusions in the Software-Enabled Consumer Products study,[80] the Copyright Office concluded that the use of software for diagnosis and repair was likely a fair use and/or protected under the repair provisions of § 117.[81]

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[75] Chamberlain, 381 F.3d 1178.

[76] MDY Industries, LLC v. Blizzard Entertainment, Inc., 629 F.3d 928 (9th Cir. 2010).

[77] 17 U.S.C. § 1201(a)(1)(C).

[78] Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 80 Fed. Reg. 208, 65954 (October 28, 2015).

[79] Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 83 Fed. Reg. 208, 54023 (October 26, 2018).

[80] U.S. Copyright Office, Software-Enabled Consumer Products (2016), https://www.copyright.gov/policy/software/software-full-report.pdf.

[81] Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 86 Fed. Reg. 206, 59627 (October 28, 2021).

These exemptions were important vindications of the legality of circumvention for repair purposes, but they are severely limited in their practical effect. The Copyright Office's rulemaking authority and the resulting exemptions only extend to § 1201's anticircumvention provision. They offer no defense to the prohibition on trafficking in circumvention tools.[82] So while it is lawful to circumvent in order to repair, creating and sharing tools that enable circumvention are not. This creates a deep mismatch between the legal rights consumers theoretically enjoy under the law—the right to circumvent in order to engage in repair—and their practical ability to exercise those rights. Even sophisticated users of technology do not have the necessary expertise to code their own circumvention tools from scratch. Indeed, even creating a tool for one's own use to take advantage of an exemption may still violate the antitrafficking provision, as the Copyright Office has noted. Without the ability to access circumvention tools tailored for repair, the beneficiaries of these exemptions are left with a hollow legal right and no legal remedy.[83]

Congress could address this state of affairs by enacting permanent statutory exceptions to both the anticircumvention and antitrafficking provisions of § 1201 for the purposes of diagnosis and repair. The Freedom to Repair Act Act (H.R. 6566), introduced in the 117th Congress, would have done just that. Without this needed statutory reform, non-infringing acts of repair will remain out of reach to consumers.

Design Patents & Repair

Design patents present another set of challenges for repair. Unlike utility patents, which grant exclusive rights to inventors of useful innovations, design patents are meant to grant rights in the aesthetic contributions of a designer. In other words, they apply to the ornamental appearance of a design, not its functionality. Design patents extend to "any new, original, and ornamental design for an article of manufacture."[84] Under the statute, patentable designs must be novel, nonobvious, and ornamental.[85] They include the surface ornamentation of an article, including colors and graphic elements, its three-dimensional configuration or shape, or any combination of the above.[86]

Once granted, design patents last for fifteen years. During that period, the patent holder has the legal right to prevent others from making, using, selling, offering to sell, or importing the patented design.[87] To prove infringement, the patentee must show that "an ordinary observer, taking into account the prior art, would believe the [defendant's] design to be the same as the patented design."[88] In other words, anyone who makes, sells, or even uses a product that looks too much like a patented design without permission infringes.

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[82] 17 U.S.C. § 1201.

[83] U.S. Copyright Office, Section 1201 of Title 17 (2017), https://www.copyright.gov/policy/1201/section-1201-full-report.pdf.

[84] 35 U.S.C. § 171(a)

[85] Id. § 171(a) & (b).

[86] Sarah Burstein, *The "Article of Manufacture" in 1887*, 32 Berkeley Tech. L.J. 1 (2017) (hereinafter *1887*).

[87] 35 U.S.C. § 271(a).

[88] Egyptian Goddess, Inc. v. Swisa, Inc., 543 F.3d 665, 682 (Fed. Cir. 2008).

Over time, shifts in judicial interpretation have eroded safeguards that limited the availability and reach of design patents. That liberalization led to a massive increase in the number of patented designs. In 1980, the PTO granted around three thousand design patents.[89] In 2019, it handed out nearly 35,000, more than a tenfold increase.[90] And a 2010 study revealed that the Patent Office rejected less than 2% of design patent applications on substantive grounds.[91] Meanwhile, damages in design patent cases have reached new highs. After Apple sued Samsung for infringing its iPhone design patents—including its rounded corners, home button, and grid of app icons—a jury awarded more $500 million in damages.[92]

These developments have dire consequences for repair. If design patents on components and replacement parts are easy to secure, manufacturers have the power to deny those parts to owners and repair providers, to charge unreasonably high prices, or to condition access to parts on other onerous terms.

A recent case decided by the Federal Circuit illustrates the worry. The Automotive Body Parts Association (ABPA) sued to invalidate two Ford design patents on a truck hood and head lamp.[93] ABPA argued that since consumers prefer parts that not only serve the same function as the original, but also restore their vehicles' appearance, those designs should be deemed functional rather than ornamental. The Federal Circuit disagreed, holding that "the aesthetic appeal of a design to consumers is inadequate to render that design functional."[94] The court also rejected ABPA's exhaustion and repair arguments. Although the sale of a vehicle exhausts Ford's control over the physical components that make it up, it does not give the owner the right to use unauthorized parts that copy a patented design. And since Ford's design patents covered individual parts rather than the vehicle as a whole, patent law's right of repair didn't permit making or using unauthorized parts.

The aftermarket for vehicle parts and accessories amounts to hundreds of billions of dollars each year in the United States alone.[95] Historically, that market has been competitive, allowing owners to choose between original manufacturer parts or a variety of less expensive non-original equipment manufacturer (OEM) options, saving roughly $1.5 billion a year when it comes to collision repairs.[96] But design patents threaten to undermine that competitive landscape, forcing consumers and repair shops to purchase original parts at inflated prices.

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[89] U.S. Patent Statistics Chart Calendar Years 1963 - 2019, U.S. Patent and Trademark Office, www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm.

[90] Id.

[91] Dennis David Crouch, *A Trademark Justification for Design Patent Rights* (Univ. of Mo. Sch. of Law Legal Studies, Research Paper No. 2010-17, 2010), ssrn.com/ abstract=1656590.

[92] Reuters, *Jury Awards Apple $539 Million in Samsung Patent Case*, New York Times, 24 May 2018, www.nytimes.com/2018/05/24/business/apple-samsung-patent-trial.html.

[93] Auto. Body Parts Ass'n v. Ford Glob. Techs., LLC, 930 F.3d 1314 (Fed. Cir. 2019).

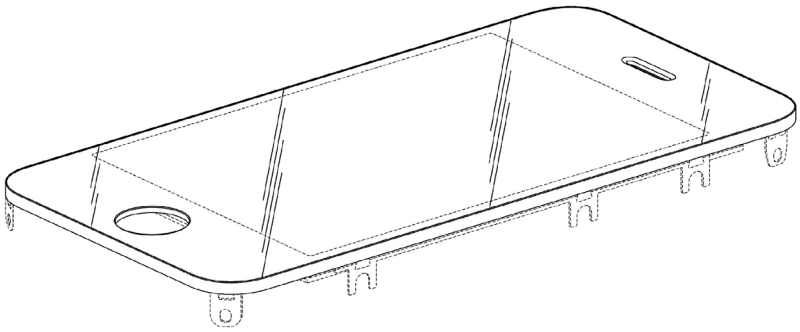
[94] Id.

[95] *Total U.S. Aftermarket Forecast to Decline 8.8% But Expected to Rebound in 2021*, Autocare Association, www.autocare.org/total_us_ aftermarket_forecast_decline_but_expected_rebound_ 2021.

[96] Joshua D. Sarnoff, *White Paper on Protecting the Consumer Patent Law Right of Repair and the Aftermarket for Exterior Motor Vehicle Repair Parts: The Parts Act, S. 812; H.R. 1879, 115th Congress* (2017), ssrn.com/abstract=3082289 or dx.doi.org/10.2139/ssrn.3082289.

Since 2005, manufacturers have increasingly turned to design patents to target competitive repair parts. That trend began when Ford filed a complaint with the International Trade Commission that stopped imports of replacement parts for its F-150 pickup trucks. The company then struck a deal giving its one-time competitor the exclusive right to distribute aftermarket Ford parts.[97] In the wake of Ford's strategy, other carmakers have used design patents on bumpers, fenders, headlights, and other parts to threaten manufacturers, importers, and distributors of non-OEM parts, and the repair shops that use them.[98]

This same strategy can just as easily be exploited by the makers of other devices. Replacement parts for home appliances, consumer electronics, smartphones and other devices are covered by design patents and have led to litigation against third-party competitors.[99] Apple has even obtained a design patent on the glass assembly of an iPhone screen, a move that could imperil any third party replacement parts for this ubiquitous piece of technology, as the image below illustrates.[100]



Two overlapping sets of changes in the judicial interpretation of design patent law explain the current state of affairs. First, courts have expanded the subject matter of patentable designs far beyond what Congress intended. Second, the USPTO, following the clear directives of the Federal Circuit, has all but eliminated any meaningful barrier to obtaining design patents. In effect, this liberalization of design patent law has given manufacturers a cheap and easy way to target competitors without clearing the much higher hurdles of the utility patent regime.

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[97] Id.

[98] Id.

[99] Complaint, KX Technologies v. Dilmen (D. Ct.) (3:16-cv-00745) (replacement water filter); Complaint, Electrolux Home Prods. v. National Trade Supply (W.D N.C.) (3:21-cv-246) (replacement water filter); Complaint, Makita v. Kastar (C.D. Cal.) (2:17-cv-01537) (replaceable battery); Thermo King Corporation v. A.G.A. Distribution Specialists (D. Minn.) (0:22-cv-00276) (replacement grill for refrigerator).

[100] U.S. Patent No. D703,633S (issued Apr. 29, 2014).

Under the terms of the Patent Act, patents are available for the "design for an article of manufacture."[101] The interpretation of that phrase is central to understanding the proper scope of design patent subject matter. By interpreting it broadly, courts have opened the door to design patents on products, like complex machines, that were never intended. What's more, courts have paved the way for design patents that claim only parts—and fragments of those parts—of a product.

When the U.S. Supreme Court heard an appeal in Apple's lawsuit against Samsung, it defined "article of manufacture" broadly. According to the Court, that term "encompasses both a product sold to a consumer and a component of that product" because it means "simply a thing made by hand or machine."[102] But that reading misunderstands the plain meaning and long history of the term. As Sarah Burstein, one of the leading scholars of the U.S. design patent regime, has argued, the phrase "article of manufacture" refers "to a tangible item made by humans —other than a machine or composition of matter—that had a unitary structure and was complete in itself for use or for sale."[103]

As an initial matter, "machines" were long understood as outside the scope of design patentable subject matter. Unlike utility patents, which extend to any "process, machine, manufacture, or composition of matter," design patents are available only for "articles of manufacture."[104] "Machines" are conspicuously excluded. For decades, the Patent Office understood that machines were not considered articles of manufacture and were ineligible for design patents.[105] The first patent claiming the design of a machine wasn't granted until nearly a century after the design patent regime was created.[106] In the decades since, the Patent Office has routinely granted and the courts have erroneously enforced design patents on machines.

Even if we set aside this error, design patent law took another, more recent wrong turn. Longstanding principles of design patent law focused attention on the design as a whole, not its constituent parts. Consumers don't perceive a design as a collection of lines, shapes, and colors, but as an integrated, unitary whole. As one court put it in 1900, "The essence of a design resides, not in the elements individually, nor in their method of arrangement, but in the tout ensemble—in that indefinable whole that awakens some sensation in the observer's mind."[107] Understandably then, design patent applicants claiming some fragment of an article were typically met with hostility. An application claiming the design of the "forward corner of an automobile body," for example, was rejected because it did not "cover a complete article of manufacture."[108]

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[101] 35 U.S.C. § 171.

[102] Samsung Electronics Co. v. Apple Inc., 580 U.S. 53 (2016).

[103] Burstein, *1887*.

[104] 35 U.S.C. §§ 101 & 171.

[105] Burstein, *1887*; *Ex parte* Adams, 1898 Dec. Comm'r Pat. 115; *Ex parte* Steck, 1902 Dec. Comm'r Pat. 9.

[106] In re Koehring, 37 F.2d 421 (CCPA 1930).

[107] Pelouze Scale & Mfg. Co. v. Am. Cutlery Co., 102 F. 916, 918 (7th Cir. 1900); *see also* Gorham Co. v. White, 81 U.S. 511 (1871); Sarah Burstein, *How Design Patent Law Lost Its Shape*, 41 Cardozo L. Rev. 555, 594 (2019) (hereinafter *Lost Shape*).

[108] Ex parte Northup, 24 USPQ 63 (Pat. Off. Bd. App. 1932).

It wasn't until 1980 that courts explicitly embraced claims identifying a mere fragment of an article of manufacture. In *Zahn*, the U.S. Court of Customs and Patent Appeals (CCPA)—the predecessor of today's Federal Circuit—considered an application for an "ornamental design for a Shank of a Drill Bit."[109] The claimed design was limited to the upper portion of the bit and explicitly disclaimed the cutting edge—the part that bores the hole. In keeping with its accepted practice, the PTO rejected the application. But on appeal, the CCPA disagreed. According to the court, the fact that the application claimed only a portion of the drill bit was no barrier to patentability. Specifically, the court held that "a design for an article of manufacture may be embodied in less than all of an article of manufacture."[110] But in characterizing the issue in those terms, the court assumed that Zahn's partial claim constituted "a design for an article of manufacture" in the first place.[111] This begs the question. The issue the court needed to decide was whether a claim directed to a fragment of an article of manufacture is a patentable design at all. As Professor Burstein has persuasively argued, *Zahn* relies on a misreading of the Patent Act and faulty logic.[112]

The risks of defining of "articles of manufacture" broadly could be tempered if patent examiners assiduously scrutinized the substantive requirements for design patents. Unfortunately, that's the opposite of what's happened. The Federal Circuit, exercising its exclusive power to review the decisions of the PTO, has consistently lowered the bar for obtaining a design patent. Today, acquiring a design patent requires little more than $5000 and a modicum of patience.[113]

To qualify for a patent under the terms defined by Congress, a design must be novel, nonobvious, and ornamental. But under the prevailing Federal Circuit interpretations, those requirements rarely present meaningful hurdles.[114] To meet the novelty standard, an applicant only needs to show that its design is not "identical in all material respects" to any previously disclosed design—the "prior art," in patent law parlance.[115] In practice, the Federal Circuit is quick to identify minor differences between claimed designs and the prior art, highlighting minor discrepancies that would likely escape the attention of reasonably perceptive consumers, ensuring that the vast majority of designs will be treated as novel.[116]

In theory, nonobviousness is a higher barrier. Even if the precise design has never been seen before, it qualifies for a patent only if it would not have been obvious to a designer of ordinary skill in the relevant field.[117] Here, the Federal Circuit applies a two-part test. First, it looks for a primary reference in the prior art—an existing design that is "basically the same as the claimed design." Assuming it finds one, the court moves on to step two, where it searches for secondary reference designs that contain other elements of the claimed design. If the

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[109] Application of Zahn, 617 F.2d 261 (C.C.P.A. 1980).

[110] Id.

[111] Burstein, *Lost Shape.*

[112] Id.

[113] Sarah Burstein, *Costly Designs*, 77 Ohio State Law Journal 107, 124 (2016) (noting $5000 estimate); Crouch, *supra* note 91 (noting allowance rate over 90%).

[114] Sarah Burstein, Is Design Patent Examination Too Lax?, 33 Berkeley Tech. L.J. 607, 608 (2018) (hereinafter *Too Lax*).

[115] High Point Design LLC v. Buyer's Direct, Inc., 621 F. App'x 632, 638 (Fed. Cir. 2015)

[116] Id. (noting minor variations in the sole and fuzzy trim on shoe designs).

[117] MRC Innovations, Inc. v. Hunter Mfg., 747 F.3d 1326, 1331 (Fed. Cir. 2014).

combination of the primary and secondary references would be obvious to a designer of ordinary skill, the claimed design is obvious. Much like its approach to novelty, however, the Federal Circuit is keenly attuned to subtle differences between the claimed design and any would-be primary reference. And without a primary reference, a claimed design can't be deemed obvious.[118]

Finally, patented designs are supposed to be ornamental. Utilitarian innovations—that is to say, inventions that offer some new functional advantage—are meant to be protected with utility patents. The ornamentality requirement should exclude designs that contribute to a device's operation.[119] But again, the Federal Circuit has undermined this core requirement. Unless a design is "dictated by function," it is considered ornamental.[120] As long as some alternative design offers "the same or similar functional capabilities," a design will be treated as ornamental.[121]

This anemic standard opens the door for patents on designs that are in no discernible sense ornamental, like standard door hinges and flexible exhaust pipes.[122] Even worse, it permits design patents that offer substantial functional advantages.[123] Apple successfully asserted a design patent on the rounded corners of the iPhone despite the Federal Circuit's acknowledgement that they improved the device's "pocketability" and "durability."[124] And in an earlier case, the court upheld a design patent on the shape of a multi-function demolition tool—a combination hammer and pry bar—as ornamental, despite the fact that its size and shape were inseparable from its function.[125]

Even internal components have been deemed ornamental. According to the court, a design is ornamental even if it is typically hidden from view during normal use. It just needs to be seen at some point between its manufacture and ultimate destruction.[126] In one illustrative case, the Federal Circuit insisted that the design of an artificial hip, despite being hidden once implanted, could be considered ornamental since it was advertised to doctors.[127]

Taken together, the expansion of design patent subject matter and the erosion of its substantive requirements allow for the proliferation of exclusive rights in the components that make up our devices. Those rights, and the threat of litigation they enable, put third party repair markets at risk. If the parts needed to repair a car, laptop, or dishwasher are patented, they are likely to cost significantly more, if they are available at all. Authorized repair partners are likely to have more reliable access to those parts, putting additional pressure on independent providers to agree to unfavorable terms to secure the blessing of the manufacturer.

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[118] Burstein, *Too Lax*, *supra* note 114.

[119] Christopher Buccafusco, Mark A. Lemley, & Jonathan S. Masur, *Intelligent Design*, 68 Duke Law Journal 75 (2018).

[120] Best Lock Corp. v. Ilco Unican Corp., 94 F.3d 1563, 1567 (Fed. Cir. 1996).

[121] Id.; Ethicon Endo-Surgery, Inc. v. Covidien, Inc., 796 F.3d 1312, 1329 (Fed. Cir. 2015); *see also* Burstein, *Too Lax*, *supra* note 114.

[122] Id.

[123] Buccafusco, Lemley & Masur, *supra* note 119.

[124] Apple Inc. v. Samsung Elecs. Co., 786 F.3d 983 (Fed. Cir. 2015).

[125] Richardson v. Stanley Works, Inc., 597 F.3d 1288 (Fed. Cir. 2010).

[126] Burstein, *Too Lax.*

[127] *In re* Webb, 916 F.2d 1553, 1557 (Fed. Cir. 1990).

These judicial expansions of design patent law explain the source of the challenges facing repair. But solving those problems does not require a ground-up overhaul of the design patent regime, justified though it may be. The Save Money on Auto Repair Transportation (SMART) Act offers a sensible, measured solution that would help restore a competitive market for automotive collisions parts.[128] In effect, the SMART Act creates a defense to design patent infringement when collision parts are manufactured and sold for the purposes of restoring a vehicle's appearance. The defense would apply only after the part has been available on the market for 30 months. This defense does not shorten the design patent term, nor would it be available to competing automakers. If enacted, it would reduce the costs of automobile repair and reinvigorate competition in the market for collision parts.

Given the cost of collision repair, design patents on automotive parts are an appropriate starting point for these much-needed reforms. But as described above, the same tactics automakers deploy are already being used by a wide range of manufacturers of consumer devices and industrial equipment makers. I would urge the Subcommittee to consider a broader defense that would include not only automotive parts, but any design patent that covers a component part of a device when manufactured and sold for the purposes of repair.

Conclusion

The right to repair is a longstanding principle, reflected in both personal property and IP law. Without it, the fundamental notion of ownership—of our cars, our communications devices, our home appliances—is under threat. Safeguarding that right to repair is a complex legal problem that has no single solution. Beyond IP law, it presents questions of antitrust, consumer protection, and contract law, among others. Nonetheless, by addressing the ways in which IP law interferes with rights of Americans to fix the things they buy, Congress is positioned to help maintain and restore this core right of property owners.

[128] H.R. 1707 (118th Congress).

Mr. ISSA. Thank you.

We will now go to Mr. Fitzgerald for the first five minutes of questioning.

Mr. FITZGERALD. Thank you, Mr. Chair.

Mr. Benavidez, the May 2023 Consumer Price Index showed that the cost of car repairs was up almost 20 percent. The National Auto Dealers Association found a similar kind of number when new car dealerships' service and parts sales totaled more than $137 billion in 2022—which is, again, up from $125 billion in the year before.

This could be attributed to a number of factors, including the inflation that we're all well aware of. Also, used and new car shortages; the complexity of repairs, of course, which is what we're discussing. Or just the labor shortage when it comes to maintenance technicians across all industries.

Supporters of the chairman's bill, the SMART Act, argue that consumers could save as much as $500 by repairing their vehicle with an after-market part versus a dealer. Now, that seems low to me, but that's the number that we're using.

So, Mr. Benavidez, what are your strategies when you're trying to deal with the part shortages and the shortage of OEM parts compared to the shortage of after-market parts? What is kind of happening on the street, I guess is what I wanted to know.

Mr. BENAVIDEZ. So, through the pandemic, we had seen some OEM companies not have as many parts in stock as we used to. That has gotten significantly better.

We support a competitive marketplace. We want competitive parts in our industry. If you don't have the quality and safety aspect in them, if you just—in the SMART Act, it says, "similar appearance," right? If that's the only thing you're worried about, they're not, they're not apples-to-apples.

We put on parts every day to secure my family, your family, in the next accident. When those parts lack the testing and the credibility to be on those vehicles, that's what hurts our shops, right? So, we want that competitive marketplace. We just wanted to add quality and safety to it.

Mr. FITZGERALD. Very good.

Switching topics here, Mr. Perzanowski, in the Northern part of my congressional seat, John Deere Horicon Works exists, which is, for the most part, a factory that does most of John Deere's lawn care line. We were pleased in January to see that the American Farm Bureau Federation and John Deere had signed an MOU. Basically, the MOU guaranteed farmers and ranchers the right to repair their own farm equipment, and that, obviously, extends to other products in the John Deere line. It is still too early to see kind of how this MOU is going to function or how it would work.

Could you explain kind of what an MOU can do in this type of situation, and what it does and what it doesn't do as far as farmers and ranchers?

Mr. PERZANOWSKI. Yes, that you ask the question.

So, I think MOUs, these memoranda of understanding which are private agreements between stakeholders in various industries to abide by a certain set of contractual provisions, can be helpful under certain circumstances. There was an MOU in 2014 that grew

out of the Massachusetts auto repair law that I think has been very effective—not perfect, but effective.

I think there are a few things that you need to see in these MOUs for them to be helpful in this situation, right? One, we need real buy-in across the industry. The MOU that was signed last week in the auto industry does not represent a significant portion of the independent repair community.

John Deere is one company among a handful that dominate in the agricultural space. So, even if they agree to a certain set of rules, that doesn't solve the problem industrywide.

It's really important that there is some enforceable, legal set of rules here, so that these things have real teeth. That's part of the reason things worked well in Massachusetts. When companies can just sign voluntary agreements that allow them to walk away at any point, that doesn't have a whole lot of meaningful enforcement behind it.

The Deere MOU is also problematic, I think, on its substance. Deere agrees to provide one software tool to farmers, but, as a report issued today by U.S. PIRG demonstrates, that particular software tool is insufficient. It doesn't solve the problem that farmers have when it comes to initializing replacement parts, the part pairing issue that was referred to in some of the earlier statements.

So, I think they can be a useful tool, but, oftentimes, frankly, I think they are designed to generate good PR and to confuse arguments around the need for legislation. So, I think we have to look at them with some skepticism.

Mr. FITZGERALD. Thank you very much. I yield back, Mr. Chair.

Mr. ISSA. I thank the gentleman.

We now recognize the Ranking Member of the Subcommittee, Mr. Johnson of Georgia, for five minutes.

Mr. JOHNSON of Georgia. Thank you, Mr. Chair.

Professor Mr. Benavidez, Professor Hartline says that it is owners of property don't have a legally enforceable right to repair that property. Do you agree with that statement?

Mr. PERZANOWSKI. So, I take a different view here. So, we can define the notion of a right in a number of ways. I don't want to bore you with property theory and talk about *Hohfeld* and give people who went to law school terrible flashbacks.

One way to think about a right is as an affirmative power to force someone else to engage in some behavior. In some cases, that is what we are talking about, right. We are talking about imposing, especially on the State level, regulations that impose requirements on manufacturers. I think that is true of the REPAIR Act on the Federal level as well.

I think part of what we also need to keep in mind is that sometimes what you need to effectuate a right is to eliminate barriers that stand in the way of that right. So, we can think about this I think helpfully in the context of tools that enable people to engage in repair.

The State-level solution has been to require manufacturers to give their own tools to repair shops, sometimes compensated under fair and reasonable terms. The other solution would be to change Section 1201 to say let's allow independent repair shops to make

their own tools. I think both of those solutions have some value to them.

I also think it is really important to keep in mind that when we are talking about IP rights, there are always multiple sets of interests at stake. One of the key balances that IP has always tried to strike is the balance between the limited statutory exclusive rights that the patent and copyright acts create and the personal property rights of consumers who own these devices.

So, I think a balancing is absolutely necessary and appropriate.

Mr. JOHNSON of Georgia. Well, tell me, what precisely do you recommend Congress do to limit the scope of Section 1201, which you seem to be advocating?

Mr. PERZANOWSKI. So, I think the best solution for Section 1201 is embodied in a piece of legislation that Representatives Jones and Spartz introduced in the last Congress, which would create a permanent exception to Section 1201 for repair that would apply not only to the act of circumvention, but would also apply to the creation and distribution of tools that are useful for repair purposes.

That does not open the door to broad, unrestrained creation of circumvention tools, but tools that are targeted to the repair market.

Mr. JOHNSON of Georgia. Professor Hartline, what is your take on this discussion?

Mr. HARTLINE. So, I think even the cases that my friend cited, the 1850 case, the Supreme Court case in *Aro*, they all make the distinction between repair, which is permissible, and reconstruction, where you actually recreate the patented device, which is not.

So, it is definitely a right of IP owners to prevent other people from practicing their invention or copying their works.

Mr. JOHNSON of Georgia. Do they have a right to prevent repair of that personal property?

Mr. HARTLINE. No, no, no. So, he cited a case about where you can repair a cover on a book. That is very different than recreating the book, every single word in it, right. So, there is a difference between repairing something and then crossing the line into violating the exclusive rights of IP owners in the patented product or the copyrighted book.

So, the things that repair supporters are asking for is that, OK, if somebody has a design patent that covers an auto body part, well they have the right to exclude other people from making that part. Repair supporters say they shouldn't have that exclusive right because we could increase competition if we just took away their design patent, and now other people can make that part.

So, that is competition. That is not the type of competition that IP law and competition law seek to support. That is like saying if we just let The Pirate Bay copy and distribute all the Disney blockbuster movies, then that is competition and prices will go down. That is not the way that we do it, right.

So, competition means other people come up with new products and new services. So, that is what we should be trying to support.

Mr. JOHNSON of Georgia. Thank you, I yield back.

Mr. ISSA. Thank you. Mr. Bentz.

Mr. BENTZ. Thank you, Mr. Chair.

I think I will ask this question of Professor Perzanowski. It is this: If you are told at the time you are buying an Apple product that you can only have it repaired by Apple, aren't you adequately informed that you will need to go to that one place, and indeed may have to pay twice or even three times for something you bought once?

What is the justification then if you were fully advised—no one reads that 50-page contract at the beginning, but let's assume by some miracle they did. Then why should the right to repair interfere with that full disclosure?

Mr. PERZANOWSKI. Thank you so much for the question. So, I would begin by pointing out, as you do, that consumers are often not informed about the terms of these sorts of transactions, right.

When you are presented with a 10,000 word license agreement, most consumers, and I think rationally, don't engage with those documents. They are designed to be difficult to read and difficult to understand.

So, oftentimes consumers are lacking that kind of clear disclosure that I think they need to make informed decisions.

Mr. BENTZ. Right, and of course I took that off the table, so could you re-answer the question? Because I just want to know if I want that Apple product badly enough to submit, if you will, to having to pay for it three times, then why should we let this right, so-called right to repair, interfere with that agreement?

Mr. PERZANOWSKI. So, I think it is important to keep in mind here, right, that not only do we have questions about kind of the adequacy of these sorts of disclosures, but one reason that consumers are engaging in these transactions and buying these products is because of consumer lock-in, right.

A consumer who buys one Apple product is far more likely to buy another because those devices communicate with each other offer sets of features that make it hard for consumers to break out of those ecosystems.

I think it is also important that in some cases it is not just an absence of disclosure, but it is affirmatively misleading promises and statements that are being made in the marketplace. So, John Deere has a history of saying lots of things—

Mr. BENTZ. I am still not sure that you are answering my question. What I am really trying to get at is if the manufacturer of the product makes adequate disclosures and the consumer then agrees to purchase with those disclosures in mind, it would then seem to me that the consumer has waived any right to make this repair argument.

I am going to move to Mr. Hartline for a minute. The opponents to repair argue the right-to-repair laws should weaken intellectual property, and I think you mentioned that. A bunch of States have passed these right-to-repair laws.

So, have you seen a noticeable decline in intellectual activity as a result of what these States are doing? It is going to be hard to measure, is it not? Perhaps you have an example.

Mr. HARTLINE. Well, so there are only two States that have passed laws related to electronic devices, and that is New York and Minnesota, and neither of those laws have really gone into effect yet. So, we don't know what is going to happen.

What I suspect is going is, especially in the Minnesota law, which doesn't have a carve-out for Federal IP protection, is that there is going to be litigation over that law, based on the idea that it is preempted by Federal copyright law and patent law.

The reason is because the Minnesota law tells IP owners that they have to turn over their IP-protected things. Federal law says no, you get to keep those to yourself.

If you don't mind, I do want to talk about the idea that people know going in. Like I bought an iPhone, and I didn't read the 10,000-word thing. The point that you are making is as long as there are adequate disclosures and there is no fraud on the public, then these are not competition issues, and there is just nothing wrong with it.

Mr. BENTZ. I want to go back to one of the elements of this discussion I was researching over the weekend, and it was the interest I have in knowing where the 30 months comes from and knowing how you measure the value of the idea and then suddenly say we are going to protect it for 30 months. I just, so—

Mr. HARTLINE. Well, I am sorry, the 30 months in the SMART Act, or—

Mr. BENTZ. Yes.

Mr. HARTLINE. Oh, sure. Well, I am not an economist and that does seem arbitrary. The term right now for a design patent is 15 years. I don't know how to say what the optimal term is, but I do think it is a bad idea to take away people's design patents so you can let other people make exact copies and then say that is innovation.

Mr. BENTZ. Thank you all for being here. I yield back.

Mr. ISSA. Thank the gentleman. We now recognize the Ranking Member of the Full Committee, Mr. Nadler, for five minutes.

Mr. NADLER. Thank you, Mr. Chair.

Mr. Benavidez, I was deeply concerned to see the original equipment manufacturers react to the Massachusetts right-to-repair ballot measure by suspending access to telematic accessories for vehicles sold in the State. How will the recent agreement between repair shops and OEMs affect consumer choice going forward?

Mr. BENAVIDEZ. Thank you, Congressmen.

Mr. NADLER. Are you concerned that we will end up with a patchwork of State laws governing right to repair?

Mr. BENAVIDEZ. This agreement with the OEMs is great for us because we are going to, finally, get to put to the rest the fact that we don't have information, right, that we weren't able to get information.

So, this is an agreement that we have worked on for a while to make sure that we have access to all information, including telematics in anything coming forward. It is in there that the commitment for both parties to support legislation if it needs to get there, but we would like this thing to stand on its own.

This agreement has been needed for some time. We stand on the front lines of repairing these vehicles. We need this data, and we have this data. Right now, we have zero repair shops asking us, hey, we don't have the data, we can't get the data, we don't know how to fix it. We don't have that right now, Congressman.

Mr. NADLER. How will this recent agreement affect consumer choice?

Mr. BENAVIDEZ. What it will do is make sure that the consumer has the right to take it to a shop that has this access and can repair these vehicles properly. The consumer is, I don't want to say it—the consumer, when they come to my facility, the consumer does not know a lot about the choices that we get and what we have to do behind the scenes.

They do not have that—they do not have that understanding. They look to us. They only get in an accident once every eight years. So, they rely on us to have that information. They rely on us to repair those vehicles properly.

Mr. NADLER. Thank you. Mr. Roberts, same question. Same question.

Mr. ROBERTS. In regarding to what impact that will have on repair?

Mr. NADLER. How will the recent agreement between repair shops and OEMs affect consumer choice going forward, and are you concerned that we would end up with a patchwork of State laws governing the right to repair?

Mr. ROBERTS. Well, first, the agreement, as was mentioned, does not represent the vast majority of after-market service providers and therefore is mostly performs a sort of public relations role rather than a functional role in terms of how the after-market will work.

Is there concern about a patchwork of laws? Well, I think for consumers who are bending and breaking under the cost of high vehicle repairs and struggling to maintain their vehicles, they would rather have a State law than no law at all.

So, I think yes, of course, from everybody's perspective it would be better to have one Federal law that applies across the country.

Mr. NADLER. Thank you. Mr. Hartline, repair advocates argue that Section 1201 prevents noninfringing circumvention of access controls for repair purposes. Congress contemplated this use when it passed the DMCA in 1998, allowing for a triennial exemption process.

Is the exemption process working as intended? If not, are there actions Congress can take to expand exemptions or make them easier to acquire?

Mr. HARTLINE. So, what is important about the triennial rulemaking is that the proponent of an exemption has to come forward with evidence and demonstrate that there is actually a problem, and it relates to a certain class of works. Then they can get a temporary exemption for three years.

So, it is true that the Copyright Office, well, the Librarian of Congress has the last—the few rulemakings has said that because using a copyrighted work in a way for repair, maintenance, etc., is fair use, that they grant the exemptions.

These exemptions are quite narrow. They do not allow the trafficking of the computer programs that can crack the TPMs. So, it is very narrowly done.

The concern is that if you were to create a permanent exemptions that opens things all the way up with access controls, copy controls, and trafficking thereof is now you are getting to the point

of why we even have these TPMs under 1201 in the first place. That is because they guard against piracy.

So, the concern is that you are opening the piracy floodgates. You make these devices less secure, and then content owners are going to be less likely to want to put their content on these devices.

Mr. NADLER. Thank you. Mr. Chair, my time has expired. I yield back.

Mr. ISSA. I thank the gentleman. We now go to Mr. Cline.

Mr. CLINE. I thank the Chair for holding this substantive and stimulating hearing.

I had a farm conference yesterday with the secretary—or the Chair of the Ag Committee, and it is timely we are having this hearing today. Because in January of this year, the Farm Bureau Federation and John Deere signed an MOU that purports to guarantee farmers and ranchers the right to repair their own farm equipment.

So, right now, we are kind of in a wait-and-see mode, but it is very interesting that it is kind of across industries.

I will ask Professor Perzanowski how does Section 1201 of the DMCA impact the ability of consumers and independent repair shops to modify or repair devices that have proprietary software and data in the consumer electronics industry?

Mr. PERZANOWSKI. Thank you so much for the question. As we have been talking about the Copyright Office, in 2015, 2018, 2021, and they are in the process for the current rulemaking, has determined that engaging in circumvention, the removal or bypassing of these digital locks for purposes of repair is perfectly lawful behavior.

There is a major practical mismatch here between the legal rights that consumers enjoy under Federal law today and their practical ability to exercise those rights. That is because, as Devlin was just describing, the Section 1201 rulemaking does not extend to the creation or distribution of tools, right.

So, I have the right under Federal law to remove the technological locks, say, on my video game consul if I want to swap out a broken disk drive. How do I do that? I like to think of myself as a pretty technologically sophisticated person. I don't have the first clue about how to do that. I need a person who can write that code, make that code available to consumers so that I can.

All I am trying to do is swap out a broken disk drive on my video game.

Mr. CLINE. You would argue that code is proprietary, correct?

Mr. PERZANOWSKI. So, I am talking here about a third party making their own code, right, that is simply allowing me to engage in activity that the Copyright Office has repeatedly said is noninfringing, but I—

Mr. CLINE. You want to give them a map, is that essentially—

Mr. PERZANOWSKI. Absolutely, yes, I do.

Mr. CLINE. Do trade secrets play a role in the right-to-repair debate?

Mr. PERZANOWSKI. There are occasions where trade secrets are important. I don't think in the context that we are talking about here with Section 1201 that we are typically running into trade secret issues. The State-level bills that have been introduced do typi-

cally address trade secrets and often have carve-outs there, and I think that is something worth considering in this debate.

I think it is important to keep in mind that like just because we have some hypothetical worry about some unknown bad actor taking a tool that I use to fix my video game console—

Mr. CLINE. Well, it is not unknown, the Chinese do it all the time.

Mr. PERZANOWSKI. I don't think the Chinese are particularly worried about whether or not I can fix my video game console. In fact, I think that point is important.

The bad actors already have these tools. All we are trying to do is get very targeted tools in the hands of law-abiding citizens who just want to repair the stuff they buy for their kids for Christmas, right. If the Chinese are going to hack the PlayStation, they have already done it.

Mr. CLINE. What role does the Library of Congress and Register of Copyrights have in granting exemptions to Section 1201, and how does this process relate to right to repair?

Mr. PERZANOWSKI. So, the 1201 process is what established the legality of circumvention for repair purposes. When Congress created that rulemaking authority, it only extends to the act of circumvention, right, the actual removal.

Congress did not give the Office or the Librarian the authority to grant exemptions to the trafficking provisions, and that is where I think legislative intervention is really important.

Mr. CLINE. Do you think State-level right-to-repair laws are having a positive or negative or just a complicating impact on ensuring that we safeguard IP protections for original—for OEMs, while also allowing consumers to repair their own products?

Mr. PERZANOWSKI. So, I think right now it is probably too early to say exactly what impact those State laws have had. Like this is all very new.

I think we can say with some confidence that in a State like Colorado, which enacted a motorized wheelchair right-to-repair law, that has had major practical advantages for folks who rely on those devices. They were waiting around for weeks and weeks and weeks for authorized repairs, and now they have the opportunity to have those devices that they rely on fixed in a more timely manner.

The longer-term consequences, I have my own predictions, but I don't think I can say with confidence what that landscape looks like today.

Mr. CLINE. Thank you. I yield back.

Mr. ISSA. I thank the gentleman. We now go to the gentlelady, Ms. Ross, for five minutes.

Ms. ROSS. Thank you, Mr. Chair. Thank you to all the witnesses for your perspectives.

This hearing provides an important opportunity for all of us to learn more about the right to repair and the role of intellectual property in the equipment that we purchase. The issues we are discussing today clearly are complex and involve numerous industries with different sorts of patents. Your perspective might be different based on the industry and the type of patent involved.

Ultimately there may be no one-size-fits-all solution for repair, particularly given that some misrepairs could jeopardize the health

and safety of users while others would not. For that reason it seems to me that regulations that govern, say, the repair of an airplane or an X-ray machine should differ from the regulations for the repair of ordinary household appliances or even maybe a computer.

So, I want to ask a question first to Mr. Perzanowski and then Mr. Hartline after him. My district is home to many medical device manufacturers, and they are on the front lines of innovation. I want to make sure we encourage research and development while safety repairing machines when they break.

So, should there be a different repair standard for lifesaving equipment versus for an everyday household item?

Mr. PERZANOWSKI. Thank you so much. It is a really important question. I think safety and security have to be important concerns any time we are talking about repair, regardless of who is making those repairs, whether it is an independent shop or an authorized provider. I think you are absolutely right; those risks are more salient when we are talking about medical devices.

To the extent we are concerned about those issues, I don't think IP law is the right set of tools to use to ensure high quality repairs. Volkswagen held all the IP rights in its Dieselgate vehicles. Abbott held all the IP rights when they had to recall half a million pacemakers.

So, I don't think the identity of the IP rights holder is what is going to get us to safe and secure repairs. So, I think the question is how do we do that? That is, frankly, it is beyond my expertise, but I would turn to the real experts here.

The FDA issued a report in 2018 that concluded that independent repair of medical devices is safe and effective. I haven't seen evidence that runs to the contrary there. If I do, I am certainly open to it. I do think we have to have a really important conversation outside of the IP context about how we make sure that these repairs are safe.

Ms. ROSS. Who's responsible if they are not.

Mr. PERZANOWSKI. Absolutely.

Ms. ROSS. Mr. Hartline, briefly, because I do have another question.

Mr. HARTLINE. Yes, thank you. So, I agree with medical equipment, that is when it is more important than ever that the right people are doing the repairs.

So, we saw in the recent rulemaking at the Library of Congress that there was an exemption granted temporarily for medical equipment, and now there is a lawsuit that is at the D.C. Circuit right now, whether you know. It is kind of about whether it is a good idea, but it is mostly about whether it violates the APA.

What I would say is there is absolutely nothing wrong with manufacturers parlaying their IP rights into repair opportunities. This is how they get more money, and they can invest that money, more R&D, more investment, more innovation.

So, this is just part of a business model that IP supports, and there is absolutely nothing wrong with it. The benefit is the right people are fixing it.

Ms. ROSS. Thank you. Mr. Wiens, I wanted to talk to you. I loved your story. I would like you to share with us whether you think

that there are any cyber security implications for the right to repair.

Mr. WIENS. Across the board, the question is who should we be able to inspect what is happening with these devices? What we have found is that when you have access to some amount of repair information, it makes information available to cyber security researchers, who are able to do better work.

We have found, I write software, *iFixit*, has had vulnerabilities in the past. We work directly with researchers, and they give us feedback and we improve it and we fix those problems.

So, when you have a little bit of sunshine on what is happening, that enablement of security research is really profound. We have actually talked about one of the challenges with Section 1201, it doesn't just ban repair tools, it also bans the distribution of cyber security tools.

So, we have seen security researchers—Apple sued a company that made a security research tool under 1201. That tool has markedly made the world more secure. It is very popular among government security researchers.

So, I think that is kind of the sweet spot, is allow some third-party inspection, it will make the product better.

Ms. ROSS. Thank you. Mr. Chair, I yield back.

Mr. ISSA. Thank you and thank you for your round of questioning. Mr. Fry.

Mr. FRY. Thank you, Mr. Chair.

It is July in South Carolina, and people are flocking in from all over the country to vacation. I will tell you something, that one of the most profound disappointments in life is when you go to a McDonald's or other fast-food establishment and you want to get a cold ice cream, an ice cream on a hot summer day, and your hopes and your dreams are dashed because the machine is broken.

Who, and I know this is kind of out of order, but who here has experienced that? Show of hands.

[Show of hands.]

Mr. FRY. Pretty much everybody, unanimously, right.

So, you are disappointed because it is hot and you assume two things, one of two things. You assume that the employees don't want to make the ice cream, or you assume that the franchisee doesn't want to provide that because of something.

In reality, according to Mr. Wiens, your op-ed, it goes much deeper than that. There are 1201 Section issues that pertain to this on who can fix the machine so that customers like me can get that great frosty from Wendy's or McFlurry from McDonald's.

Real quickly, Mr. Wiens, just you know, and, Mr. Chair, with unanimous consent, I would like to enter into the record Mr. Wiens' op-ed, "Congress Is Preventing Us from Fixing McDonald's Ice Cream Machines."

Mr. ISSA. Without objection, so ordered.

Mr. FRY. Now, I think it is really important, and Mr. Fixit, if you can, can you elaborate on how current restrictions on the right to repair affect the average consumer, and particularly touch on the cost and the convenience for the consumer.

Mr. WIENS. Well, first let me say it is not the poor McDonald's employees' fault. It is the machine's fault.

So, these ice cream machines are made by Taylor, and there is an incredibly complex, baroque set of touch screens you have to go through. Then there is a service password you have to be able to get past to access the settings that really allow you to do what you want.

So, in an ideal world, you would have an entrepreneur who would come along and make a tool to make it easier for McDonald's. Maybe they could, they have an app on their phone that they could use and configure and help them diagnose and repair the machine. Unfortunately, the company who made that tool is struggling legally because of all these challenges.

Across the board, if we had innovation outside of the manufacturers to be able to develop new tools for fixing ice cream machines or anything else, you have a whole flowering ecosystem of repair tools. Right now, it doesn't exist.

The U.S. is like this black hole where innovation in banned in software repair. I can't—there's all kinds of opportunities I could see. I had a farmer ask me for help fixing his John Deere tractor, and I had to say I can't do that particular repair because it is illegal.

I would love to build a cool app for helping him diagnose and fix his tractor and get back in the field faster. We don't have that marketplace right now. It is like farmers have been forced to like use cracked Ukrainian versions of John Deere's diagnostic software.

Mr. FRY. Right, so it is not, again, it is not just ice cream machines. I led off with that, but it is farmers, it is farm equipment, it is iPhones, it is somebody's Xbox, right.

These are all things—in your experience, what are the challenges that these customers and stakeholders face when they are trying to repair their own devices? What are some things that they face?

Mr. WIENS. It is absolutely infuriating. If you are—OK, so my friend, a farmer in San Luis Obispo, Dave grows all kinds of amazing produces. He has a $300,000 John Deere tractor.

Came to me and said hey, there is a bad sensor. It is going to take a week to get that sensor sent out from Indiana and I need to use the tractor in that time. Will you help me bypass the sensor?

I could hypothetically modify on the software on the tractor to do that. Practically I didn't have the legal ability. So, he had to go and rent an expensive tractor for the week. This is impacting people's lives every single day.

Mr. FRY. Right, so and to pivot a little bit, what role do you use from a Federal side from legislation, and what specific measures do you think might be included in such legislation?

Mr. WIENS. So, we have seen kind of the solutions being approached from two angles. At the State level, you have States saying John Deere and other manufacturers, if you have a dealership that has fancy tools, sell those tools to consumers and to independent shops, allow that competition.

At the Federal level what we can is enable a competitive marketplace for those tools. So, rather than compelling John Deere to sell the tool, we could say hey, it is legal for someone, an entrepreneur, to make a competing too. You have this in the car market.

You can take your car down to AutoZone and you can buy a scan tool, plug it into your car, and it will decode some of the error mes-

sages. Those tools exist in the auto market because we have a standard diagnostic interface on cars that you can access without circumventing a DPM. We don't have that for any other products.

So, another farmer in my town, he showed me how if he has a transmission go out on the truck, he can fix that. If has a transmission go out on his John Deere tractor, he can't. He can physically install the transmission, but he can't program it to make it work. I would love to be able to make a software tool to enable him to replace his transmission.

Mr. FRY. Thank you. Mr. Chair, I yield back.

Mr. ISSA. Thank you. We now go to Ms. Lofgren for her round of questioning.

Ms. LOFGREN. Thank you very much, Mr. Chair.

As I have listened to this testimony and the questions, a couple of things come to mind. First, what we are looking at, and you and I have talked about, is relief for design patents in automobiles has nothing to do with utility patents. I just thought it was important to note that.

Then as to adequate disclosure, I remember when we were talking about this in the 1990's, a situation where a nonprofit had put a, on like page 25 of their disclosure, if you have read this far, we will give you $1,000. No one collected the thousand dollars. So, it is not really, most of these are not meaningful disclosure.

I just think it is important to go back to 1998—only the Ranking Member and I were here at that time—and what we were trying to do with the DMCA. At the time, we were concerned, and I think rightly so, that there was theft of copyrighted material, songs, movies, and the like.

The protection that was being advanced was to preclude hacking into that copyright-protected material with TPMs. I was for that. I thought that was a good idea because that piracy was improper and wrong, and this was a way to solve it.

At the time, though, I remember raising the issue, what if these TPMs are going to be used to protect noncontent and we ought to address that. We didn't come to an agreement on that. The compromise was to have the Copyright Office revisit this periodically for relief, should that occur.

I think it has been pretty clear that process has not worked perfectly well. For them to pay attention to something, there has to be a huge stink in the country. For example, the monopolies on cellphones. People were upset about it; we had a hearing about it.

So, finally, they dealt with that. Other monopolies, we didn't do TPMs so monopolies could control products. That was never the intent.

So, I think the process didn't really work as had intended, and the process has to do with the lack of scope, as well as tools. We left the tool part out when we did the DMCA.

So, I guess the question is, and maybe Professor, you could address this, could we craft a measure that allows for tools to disable TPMs when the TPMs are being used not for content protection, as was intended, but to promote essentially monopolies through products. Is there a way to do that?

Then the other thing is cyber security, is there a way to narrowly define an exemption for cyber security? Because that would be very

helpful for society at large, and by the way, I think would help reform the CFAA, which Congressman Sensenbrenner and I tried to do a number of years ago. We didn't get any traction, but the misuse of the CFAA for legitimate researchers continues to be a problem.

Can you suggest ways that we could narrowly craft a change that would still protect content holders?

Mr. PERZANOWSKI. Thank you so much for the question. I am little reluctant to try to start drafting statutory language on the fly.

Ms. LOFGREN. Fair enough.

Mr. PERZANOWSKI. I think the point you raise is a really important one. I think that the previous proposals about creating new statutory exemptions for repair purposes go a long way to limiting the scope of Section 1201 beyond the kind of entertainment content that was originally Congress's goal to protect. I completely agree with your kind of recounting of that story.

There are existing statutory exemptions in Section 1201 that I think can serve as a useful model. They are very narrow. I would like to see some of those expanded. They go to encryption research, security testing. There is a law enforcement exemption.

I think looking at the existing language can be a helpful model for a repair exemption, and also for addressing some of those cyber security concerns that you—

Ms. LOFGREN. At the time that we wrote it, we weren't really envisioning the red hat movement that we see today and the utility that that has provided for more secure software. We did the best we could, but it was 1998 and a lot of things have changed since then.

Mr. Chair, my time has expired, but I am hopeful that we can address this issue. Protect the content that we always wanted to protect, but let people own the things they thought they owned, instead of finding out that it is only a lease.

I yield back.

Mr. ISSA. I thank the gentlelady.

I now ask unanimous consent for the record that the documents from the National Association of Mutual Insurance Companies; documents concerning the new YouGov poll, it is a one-pager; the YouGov poll release itself; the SMART Act white paper; the REPAIR Act white paper; the Vehicle Suppliers Association documents; and the attached documents and a compilation of letters in opposition to the announced MOU for groups representing more than 200,000 repair shops of the ASA—I'm sorry, ASA representing 201,000 shops total—be placed in the record; and a survey that demonstrates strong support for Federal vehicle right-to-repair legislation be placed in the record.

Without objection, it is all in. We now go to the gentlelady, Ms. Lee, for her questioning.

Ms. LEE. Thank you, Mr. Chair, for hosting this important hearing today and for your leadership on this issue. I am proud to join with you in this subject.

I would like to being with returning to you, Professor Perzanowski, on this question. Obviously, one of our concerns is the rising cost of repairs when coupled with the rising cost of vehicles, how this affects consumers.

I would like for you to talk with us about the effect that you anticipate passage of the SMART Act might have on insurance rates for consumers, and whether it is something we anticipate a decrease in rates, lower costs as parts and repairs become more accessible for consumers.

Mr. PERZANOWSKI. Thank you so much for the question. So, I think if we see passage of the SMART Act, we can anticipate significant reductions in the expenses associated with auto collision repairs. Estimates are that design patents on collision parts are responsible for about $1.5 billion in additional expenditures.

We see price premiums on OEM parts over third-party parts often reaching into like the 40 percent range, right. So, these are pretty significant cost savings associated with that.

Part of this problem I think does relate back to the kind of unique structure of this market. Most consumers are not paying out of pocket for collision repairs. Those costs are being covered by their auto insurance provider.

So, the consumer doesn't see that the—I am pulling this from memory, so don't hold me to this figure—but the side view mirror of a Ford Fiesta costing $1,500.

That is not something that the consumer is confronted with, right. So, this goes back to the question of notice. Do consumers know when they buy that vehicle that the repairs are going to be that expensive? I think in most cases they don't.

So, I think the SMART Act is a very targeted solution to this problem. I do think it is important to note that the design patent issue for replacement parts is not limited to the automotive industry. I think it is the most I think that is the area where the problem is most pressing.

Home appliances, consumer electronics. We see companies getting design patents on replacement water filters for refrigerators so that they can charge three times as much when the little light comes on your fridge to tell you that your water might not be as clean as you want it to be.

So, I think we have to think about that problem across a range of industries. The automotive industry I think is absolutely the right place to start.

Ms. LEE. All right, and staying with the automotive industry and the concept of the SMART Act, would passage of the SMART Act in your view promote entry into the repair market of more mom-and-pop or independent shops? If so, how would that advantage the end consumer?

Mr. PERZANOWSKI. So, I think in an environment where consumers are facing lower costs for repairs and fewer vehicles are being totaled, right. One of the byproducts here of the high prices of these replacement parts is more and more vehicles are being totaled.

So, we would see more opportunity for competition in those marketplaces. Generally, right, we rely on this principle that the more competition we see, the lower prices are going to be and the higher quality is going to be. So, I think that is beneficial.

Ms. LEE. Mr. Roberts, you look like you had something to add there.

Mr. ROBERTS. No, not really. I think that what Aaron said is correct, which is, one of the key goals of right-to-repair legislation is to promote a vibrant ecosystem of service and repair.

One point I would just make is that with the internet of things, right, we are going to facing a crisis in the very near future as manufacturers of everything from home appliances to personal electronics to equipment, as those products age and those manufacturers walk away from their responsibility to maintain them.

So, we are no longer supporting the software. We are no longer issuing security updates. Who will step in to maintain those devices, keep them secure, keep them operating, right.

The manufacturers walked away, do we just get rid of them? No, because the equipment still works perfectly. We are going to need a market-based response to that. We are going to need small businesses to step up and say hey, I will keep that Samsung dishwasher working for another 20 years.

That is a huge economic opportunity for this country, but we cannot do it in the existing system because of the types of restrictions that we are talking about.

So, this is really about enabling a secure future in which when you buy a dishwasher with a 20-year lifespan or 25-year lifespan, it is going to last those 25 years, not the five to six years that the manufacturer has decided that is how long we want to support the software for.

There are cyber security implications for that as well, obviously.

Ms. LEE. Thank you. Mr. Chair, I yield back.

Mr. ISSA. I thank the gentlelady. We now go to the gentlelady, Ms. Dean.

Ms. DEAN. Thank you, Mr. Chair. I thank the Ranking Member and you both for bringing us this thoughtful hearing. I thank those who have come to testify for your thought-provoking information and expertise.

Mr. Benavidez, I was interested in talking with you because I am a little nostalgic. My grandfather, Bill Dean, had a garage in Germantown, Philadelphia, part of Germantown, Pennsylvania. Dean's Auto. His slogan was "The dean of them all, we repair everything, the dean of them all," something like that.

How he advised me when I bought my first used car. I bought a Mazda RX–7 used. I think it had the pop-up lights and an electric—it was a gray car—rotary engine, remember? An electric antenna.

He warned me, he said, "Mad, when you do that, you are going to wind up with more repairs." More gadgets, more repairs. Well, that didn't stop me. I loved the car; it was a lot of fun.

I was thinking of you. Bring us up to speed. If my grandfather were here today, what is it like in your repair shop, your body shop, your repair shop, with the challenges that come in as a result of a vehicle breaking down or being backed into, whatever it? What has happened in the last 10–20 years?

Mr. ROBERTS. Thank you, Congresswoman. You would be astounded at what we face on a daily basis.

We are dealing with more crash parts, more electronics, more lane departures, more—I see that guy in the commercial and he is clapping his hands as he is driving that vehicle. I have to put that

vehicle back on the road after it gets in an accident so he can clap again as he goes down the road.

It is very difficult. It is a scary business to be in. Sometimes I go to industry events, and I come back to my dad, who is still working at the shop, and say, "Dad, this might be time for us to get out of this." Because it is scary how—and put my kids in the car, put your kids in the car.

We have lane warnings and we have departures that—we have automatic breaking now that we have to make sure is correct. There is an emblem inside the Toyota at the front of the Toyota that is a radar emblem. If we don't put the correct emblem on that vehicle, that car can get in accident again, quickly, right as it leaves my shop.

It is very disturbing, what we have to go through.

Ms. DEAN. So, essential to you, for your peace of mind and your ability to do your job well, is the repair data, very transparently. Is that correct?

Mr. ROBERTS. Absolutely. It is the one thing we count on. From when it comes into my shop, we look up repair data to fix the vehicles. When we check it in to get it to the repair inside the shop, we look at the repair data.

When we give it to my technician, we look at the repair data. When it gets out of his hands, we look at the repair data. When we return it back to the customer, we have to scan it again and make sure we look at that repair data.

So, we are constantly needing that data to repair those vehicles.

Ms. DEAN. Thank you very much. Mr. Wiens, in your written testimony, you concluded,

> A robust repair market creates and expands job opportunities in the United States, keeps reusable, repairable products out of the waste and recycling streams, and gives consumers more options for what to do with a malfunctioning product.

I am in favor of all those things. How do you respond to the suggestion that the right to repair is harmful to U.S. businesses, is harmful to content creators?

Mr. WIENS. Well, I don't think the right to repair has much to do with content creators. It really is, it is a balance between big business and small business. The question is who gets to decide what happens with our things. Who gets to decide at every step of the way.

I have worked a lot with Apple products over the years, and Apple's perspective is that they want to be the one to decide. Right now, Apple has a repair program, but you have to do a repair, you have to give them your serial number ahead of time, and they like decide, they basically give explicit permission.

When the repair tool phones home to Apple and says can I do this repair, Apple says, "yes, the serial number is authorized, and they allow just that repair."

If I wanted to do that same repair on that phone the next day, I wouldn't have permission. So, small businesses need the ability to innovate.

I am going to be, tomorrow I am going to be at a repair shop in Minnesota called re:power, where they take disadvantaged folks who didn't have economic opportunities, they use *iFixit* guides.

They train them to do repairs. They are taking discarded electronics, fixing them, and selling them in the community.

Ms. DEAN. All right, interesting. Thank you, I yield back.

Mr. ISSA. I thank the gentlelady. We now go to the gentleman from California, Mr. Kiley.

Mr. KILEY. I yield back to the Chair.

Mr. ISSA. Yielding to the Chair, I will use that time.

Today we are primarily talking about Section 8, Clause 8. I will read it because it is short. "Patent and copyright clause." It says,

> The Congress shall have the power to promote the progress of science and useful arts by securing for a limited time to authors and inventors the exclusive right to their respective writings and discoveries.

Mr. Hartline, I am going to start with you. On a design patent, what is the discovery?

Mr. HARTLINE. Well, so a design patent is a new, original—

Mr. ISSA. It is an ornamental statement—

Mr. HARTLINE. Ornamental design.

Mr. ISSA. Is it true that the United States is one of the few countries that actually recognizes ornamental designs for purposes of a 15-year exclusion?

Mr. HARTLINE. I am not familiar with international patent law, I am sorry.

Mr. ISSA. OK, well, let's just say—

Mr. HARTLINE. It has been recognized here for over a century.

Mr. ISSA. Right, we have had them for a period of time. They have had different periods and so on. Because they are ornamental in nature, does each part have to be uniquely ornamental, or does the Patent Office, to your knowledge as a professor, do they grant it based on what appears to be a distinctive, different design than the one that came in the day before?

Mr. HARTLINE. I am not a design patent law expert. When I taught patent law, I covered utility patents. I skipped design patents, so.

Mr. ISSA. I don't blame you, because design patents historically basically prevent your competitor from making a deceptively similar product. Would you all agree? I see the heads nodding.

So, much of the discussion today is, in fact, on protection that is granted by design patents. Much of what we are looking at doing is to modify, enhance, or define design patents in a way in which they do not exclude six, or seven, or eight years later that faded headlight that can no longer be polished to be usable from costing you $1,500–$2,500 each to replace something that used to be available at the auto parts store for about six bucks.

Mr. Roberts, you are shaking your head. Why don't you opine on that, if you don't mind.

Mr. ROBERTS. Yes, you make a really good point, Chair Issa. I think the point here is to focus on the downstream impact of these policies.

One thing I would point out, again, and hashtag not a lawyer and also not in the auto business. My understanding is the use of design patents has increased dramatically, even exponentially in the last 10–15 years.

If you go back to the 90's or 80's, parts makers, auto makers were not applying these types of patents to replaceable parts like

bumpers and rear-view mirrors. Somebody had a business decision that if you can do so, then we can capture more of that aftermarket by outlawing identical after-market replacements.

That has a huge downstream impact on car owners and on insurers and on all of us. So, yes, I think you make a really valid point.

Mr. ISSA. Well, in the time Mr. Kiley has yielded me, I am going to ask one more question that is salient to all this, and that is we haven't talked much about True Parts.

I happen to have one of Coparts, one of the major companies that recovers automobiles. Totals them out, resells them, exports them, any number of uses. Generally, they are receiving it from an insured in a total-out.

Now, historically, the founder of that company started off cutting parts off Dodge and Chryslers and selling to people who then put them onto their vehicle and kept it running.

Today many of those items, and I will start with Mr. Wiens, many of those items, because of the DMCA as it is presently interpreted, when you take the authentic transmission, the authentic radio, the authentic product off of a near-identical make or model of a car, or for that matter, going further even though that is not their business, an IBM computer, a Dell computer, whatever.

To put these two original, authentic products back together again, you need software, which is not provided, and which is being withheld. Is that correct?

Mr. WIENS. That is correct. If I take a brand-new iPhone 14, and I have two of them, and I swap the screens between those, you don't get full functionality back. You are missing a number of key features.

I included in my written testimony a chart of the increase in these parts pairing over time. So, we got our start doing exactly what your constituent did. We would disassemble laptops and sells the parts. That is increasingly hard to do.

We took a MacBook Pro, we took screens between of them, and it just didn't work without a software tool that Apple makes. Of course, I would like to maybe be able to make an alternative software tool to Apple's, but I can't right now.

Mr. ISSA. Mr. Hartline, you have been quite an advocate today for some of these issues, perhaps in opposition to what we are proposing.

Would it surprise you to know that, for example, IBM buys used parts back from companies that supply them to keep very old IBMs with important software on them, such as the IRS, when they no longer make them, while at the same time opposing, opposes allowing that same company to sell them to companies that are not using their "maintenance," remembering that the maintenance is not IBM making the parts, but in fact buying them off the market?

How do you reconcile that within the questions of what I said, which was this intellectual property question that we are looking at modifying to create a better right-to-repair market?

Mr. HARTLINE. So, I am not familiar with the IBM story, in particular, but what it sounds like to me is you have got somebody who has IP protection because they created something new, something useful, etc., and what do they get? They get a right to exclude.

So, they can use that right to exclude to create business relationships and to increase their profits, which they in turn use on R&D and we get more innovation.

Mr. ISSA. My time has expired. I would cite for all of us that the first use and sale doctrine said,

> You have given off those very rights when you sell those two IBM products that now are trying to be merged.

With that, we will go to Mr. Ivey.

Mr. IVEY. Thank you, Mr. Chair. I want to take a minute to commend you for this hearing. I greatly appreciate the opportunity to look at actual legislation that can make a difference in the lives of the American people and thank you for doing this work.

I did want to followup, Mr. Roberts, that you had a point about I guess companies potentially walking away from repair obligations. What struck me is pretty important, but I hadn't really heard much about how to address that. You discuss the issue.

Are there ways to fix that problem? Then the sort of inversion of that I suppose is them not walking away, but the capture scenario that the Chair just mentioned, where you sort of buy up the items so that they can't be used again for resale?

Mr. ROBERTS. So, I mean obviously my background and expertise here is around issues in cyber security, so I will defer to some of the other panelists on some of the legal and market issues.

What I would say is that both of the things that we are really proposing or talking about here, which would be changes to Section 1201 of the DMCA, as well as passage of robust right-to-repair laws, would empower a market-based response to keeping the internet of things working, secure, and functioning.

The DMCA 1201 reforms, by making it clear that you can circumvent software locks for the purpose of repair and maintenance and upkeep, right. So, that would take the threat of the Federal crime away from small business owners as well as security researchers who are interested in plumbing that software for purposes of maintenance, upkeep, and repair.

On the right to repair, by making the tools available to maintain and upkeep products, diagnostic software, schematic diagram service manuals available, once again, you will be empowering small business owners to set up repair shops and say I am going to keep your smart appliance running for its full 25–30-years lifespan.

I am going to support my family doing that locally and not be basically choked out of business by a company that says, well, you don't have the right to access this product.

From a cyber security perspective, that is really important, because one thing we don't want is a population of millions or tens of millions of out-of-date, unsupported, unpatched, insecure, internet-connected home appliances, webcams, home routers out there available to Nation-State actors, cybercriminal groups to compromise and use for their own purposes.

That is something we already see, particularly around broadband routers and other types of devices. It is a real threat going forward that I think these types of changes would support.

Mr. IVEY. Anyone else on the panel want to take a crack at that?

Mr. WIENS. Sure, we need to find a way to get these devices secure. I like to call the internet of things the internet of outdated Linux distributions.

It is old software. The LG's website says that you should check for security patches for your refrigerator every other month. Then the manufacturers often are not following up, they are not spending the resources.

We see how often do you get updates for an Android phone? A couple years and then the manufacturers stop doing it.

Google with their Chromebooks, we see schools—I heard about a school yesterday that had 20 pallets of Chromebooks that they bought during the pandemic for their students that they are having to throw away because they can't get security updates for them anymore.

We need to find a way to make these things last longer. Sometimes it is incumbent on the manufacturer. We should talk about maybe asking them to make security updates available longer.

At some point also we need to take the ownership on ourselves and allow the rest of us to maintain it and patch these devices. We do not have permission right now to patch the devices. It wouldn't be legal for me to make a tool to break the lock on those Chromebooks to allow a school district to use them longer.

Mr. IVEY. Thank you. Mr. Chair, I yield back.

Mr. ISSA. I thank the gentleman. We will now go to the gentleman from Colorado for five minutes.

Mr. NEGUSE. I thank the Chair.

First and foremost, let me echo the sentiments of my colleague from Maryland in terms of thanking the Chair and the Ranking Member for hosting this important hearing, which I think is substantive and concerns an issue for which there seems to be an emerging bipartisan consensus. So, I think that the Chair is very thoughtful in terms of putting this hearing together.

Of course, I thank all the witnesses for their testimony, both the written testimony and their testimony today verbally.

My home State, I represent Colorado in the U.S. Congress. As you all know, and I believe it has come up once or twice here, that Colorado has been a leader in this regard with respect to right to repair.

Last year, our State proudly enacted the right to repair for powered wheelchairs. This year the State legislature acted yet again, by enacting the first right-to-repair legislation for agricultural equipment, a really big deal for the farmers and ranchers that I represent in Northern Colorado and Northwest Colorado. They are critical steps, in my view, to protect consumers, improve innovation, spur economic growth.

I am hopeful that other States will emulate the model that Colorado has adopted. Of course, we can take some lessons learned as well here in the U.S. Congress, and potentially pursue this at the Federal level.

There are many of you who have worked on this. I want to, perhaps, start with you, Professor Perzanowski, because I know that you played an active role, my understanding, in supporting Colorado's State efforts for right-to-repair legislation.

I wonder if you might be able to expound a bit on the benefits for our farmers, in particular, in the agricultural context?

I have listened to some of the debate. I am a lawyer, so was a Chief Regulator in Colorado for many years, so appreciate the very academic and almost esoteric debate that we have been having in the context of IP patent law, and the different theories as to whether or not it permits the kind of right-to-repair legislation that we have enacted at the State level.

I would like to kind of cut through all that and get to the core of why we are here, which is it is a big deal for our farmers. It is going to have a profound impact on many of my constituents. I wonder if you might be able to offer your thoughts, Professor?

Mr. PERZANOWSKI. Sure. Thanks so much.

In a lot of instances this conversation, and we have touched on this earlier, focuses on cost savings. Right? Cost savings are an important consideration. Right? Farmers aren't thrilled that they have to pay a technician from the John Deere dealer to drive maybe hours to get to their farm and connect their laptop and to download these payload files to enable their equipment to work.

In the agricultural space the thing I hear most often in the conversations I have with farmers is—and Kyle touched on this a bit earlier—a real concern about the time sensitivity of their work.

If your tractor is out of commission for a week or two in the wrong part of the season, that is going to have disastrous effects, right, not only on that farm's economic outlook, but collectively it can have an impact, not to be hyperbolic here, but on our national food supply.

So, it is really important that farmers have flexibility in terms of where and how they execute repairs, so that they can get their equipment back up and running.

If my laptop breaks and I can't get it fixed for a week or two, I am annoyed. There will be emails that go unanswered. The world will continue to spin. That is not the case in the agricultural space where we have to be much more concerned.

Mr. NEGUSE. Thank you, Professor. I couldn't agree with you more.

I wonder, perhaps you can talk about this in the context, and perhaps this has come up previously, of repair manuals. Do you think repair manuals are copyrightable material?

Mr. PERZANOWSKI. That's a great question.

So, I think the copyright in a repair manual, to the extent it exists, is incredibly thin. Right? So, copyright law does not protect facts. It does not protect ideas. It does not protect systems or processes. So, if you look at most repair manuals, they are describing in very plain, literal language, step-by-step processes for interpreting error codes or replacing a component part.

So, I am pretty skeptical of the copyright claims that we see there. There has not been a whole lot of litigation around repair manuals. There was a case involving Gulfstream where the court determined that the copying and distribution of those repair manuals was a fair use. I think that is the right way to resolve that.

Mr. NEGUSE. I see my time has expired. So, I will simply say, with the Chair's indulgence, that I am a champion for the free market. I believe firmly in the competitive marketplace.

I think the solutions we are discussing today and will continue to discuss after today, the conclusion of today's hearing, are about supporting the free market and ensuring that IP and copyright law is not so distorted that we lose the forest for the trees. Because a lot of Americans out there, to the extent they are watching this hearing, are wondering how in the world a repair manual for a tractor, for a household consumer item could somehow be construed as such through a legal doctrine to as preclude a consumer, a farmer, a citizen to be able to repair that product.

So, with that, I yield back, Mr. Chair, my time.

Mr. ISSA. I thank the gentleman.

I now recognize the Ranking Member for a unanimous consent.

Mr. JOHNSON of Georgia. Thank you, Mr. Chair.

I have a letter from Consumer Reports, a letter from the Alliance for Automotive Innovation, a letter from the Center for Democracy and Technology, and a letter from the Intellectual Property Owners Association which I ask to enter into the record with unanimous consent.

Mr. ISSA. Without objection, so ordered.

I now recognizing myself in closing a little bit here my round of questioning.

We have had a lot of discussion. I want to try to bring a couple of items back.

I talked earlier about two authentic parts that are not able to be put together without a third-party tool. Of the five of you, does anyone defend the authentic parts, bought and paid for by one or more individuals, from being continued to be used, used and put back together, somehow as a right of the manufacturer to prohibit this?

Anyone? Mr. Hartline, I had hoped that you might.

Mr. HARTLINE. You were looking at me.

So, I am trying to understand. So, this is a reauthentication thing? So, like—

Mr. ISSA. Exactly. As Mr. Roberts said—I think it was Mr. Roberts, if I take, if I take this phone, which has a dying battery which needs replaced—

Mr. HARTLINE. Yes.

Mr. ISSA. —and my other phone, which has a cracked screen, and I go in and say, could you make one of them work for me, please? Put the good battery in with the good display, or vice versa. Both have a chip interface designed to stop them from being put in.

As a matter of fact, even though the battery is authentic, if I simply put it into a different one it will tell me and it will give me an error code saying it is not an authentic battery every time.

I love Apple. I have consumed a tremendous amount of their products. That is deliberately designed, even with authentic parts, to prohibit the reuse.

Mr. HARTLINE. There is a lot of business reasons why they do it, including security. I know that used to be you put your thumb on the thing to open it up. So, they wanted to make sure that people weren't able to replace it to break into people's phones. All of our personal information is in the phones.

I understand that Apple, in particular, you don't have to go to the Genius Bar anymore. Right? They have a repair program. They

will actually send you the parts. They will sell you the parts. They will send you the tools. It is the exact same tolls that the guys in the Apple store have; right?

Mr. ISSA. Wait a second. The only question—

Mr. HARTLINE. Yes.

Mr. ISSA. —before us is whether it is Apple—and I don't want to talk about Apple, particularly,—

Mr. HARTLINE. Yes.

Mr. ISSA. —because each of these companies is different. If I remove from my BMW, at least during certain models, I remove the radio, unplug it, and then plug it back in simply because I was fiddling around with the dash, I now have to go back to the dealer to reinstall it.

Similarly, the transmission example, authentic tran—I have got two John Deere tractors, one has got a busted engine, the other has got a busted transmission. Currently, they will prohibit you from moving the transmission from one to the other.

From a standpoint of intellectual property, where in God's green Earth, or the Constitution, are any of those designed to be rights that belong to the manufacturer rather than rights that belong to the owners of those two John Deere tractors?

Mr. HARTLINE. So, those are a bunch of different situations. So, I think there would be underlying facts that differ with each. Right?

So, we started on the iPhone. I was going to point out that iPhone will actually give you the tool to synchronize it.

Mr. ISSA. Yes.

Mr. HARTLINE. In those other situations, I don't the business justification for it. If it is not an IT problem, how is that an IT problem? Right?

So, if that is locked up with the TPM and you have to bypass the TPM, well, then that is the violation of 1201. So, that is how they can, that is how they can lock—

Mr. ISSA. So, what you are saying is that Congress has created an impediment to the right to repair.

Mr. Roberts, would you say that is correct, that in fact the right to repair, were Congress never to have done anything since George and Thomas were our Presidents, so to speak, knowing those two presidents, we would be able to do things we are not able to do because they are now prohibited by acts of Congress?

Mr. ROBERTS. Yes.

We certainly know, going back to the fifties, sixties, seventies there was a much more; first, companies would ship products with service and repair manuals with schematic, detailed schematic diagrams, with the understanding that owners would want to replace and service them.

What I would say is, yes, absolutely, I doubt very much—and I know we had Members who were here in 1998 authoring the DMCA—I think if you had said to them, in 25 years' time this law will be used to prevent somebody with a broken dishwasher from getting that serviced by their local repair shop or by fixing it themselves. This law will prevent them from doing that.

I doubt very much they would have said, yes, that is pretty much what we want.

Mr. ISSA. Yes. I will tell you that I was the Chair of the Consumer Electronics, what is now the Consumer Electronics Association in 1998, and we did predict a lot of these items were going to be expanded beyond the scope of the original.

I have got just two, two closing quick questions. Oh, and then the Ranking Member has a couple questions.

Constructive abandonment. Is there anyone that disagrees that when a company takes, for example, its copyright and simply abandons it. The historic intent, not codified in law, but historic intent is that if you abandon your copyright such as you no longer make the instruction manuals available, or your firmware updates simply are no longer posted, or your company goes out of business, in fact, even though today from time to time there is content, is there anyone that doubts that this should be a protected right to the consumer to be able to get that now obsolete or unavailable data?

Seeing none, I will take that as the first full agreement of the day.

The last one is, there anyone that doesn't believe in the first use document, that if I buy authentic product that I should be able to use and reuse it? That any attempt to turn a piece of equipment into a brick simply because it transferred from Owner A to Owner B is inherently wrong under the many traditions and laws of the United States?

I will take that as agreement No. 2.

I am now told to say the following: I have introduced a bill under discussion, the SMART Act, H.R. 1707, which would help solve the problems of limited access to parts. My colleague Dr. Dunn of Florida has introduced the REPAIR Act, H.R. 906, which would help solve an issue, limited access to basic repair and maintenance and data in your vehicle.

The question is, would you commit today to work with us, each of you on the panel, in advancing those bills and making such changes as would make them acceptable to all of you?

[Affirmative nods.]

Mr. ISSA. I see yeses. So, I will take three in a row.

I now recognize the Ranking Member.

Mr. JOHNSON of Georgia. Thank you, Mr. Chair.

This question is to both Mr. Benvanidez—Benavidez, I am sorry, and Mr. Roberts.

The 2014 Memorandum of Understanding between the original equipment manufacturers and the repair associations guaranteed that the OEMs would provide the same service information and tools to independent repair shops as they do their franchise dealers.

How has this agreement worked in practice?

Do you believe we need Federal legislation on the right to repair?

Mr. BENAVIDEZ. We would hope that it would stand on its own, our agreement with the automakers. We are not against legislation if it adheres to this agreement.

We do not, right now, have any shops clamoring for data. We just don't have it. We get it from the 2014 Amendment.

We get this data now. We use this data every day. We are able to repair these vehicles with that data.

Mr. JOHNSON of Georgia. Thank you.

Mr. Roberts?

Mr. ROBERTS. We urgently need a Federal version of the Massachusetts law, the Repair Act.

First, Mr. Benavidez is right, right now this is not an urgent issue because most of the cars out there are older vehicles. As we move forward, as telematic systems evolve, as automakers continue their trend of moving more and more information to telematic systems, this is going to become a bigger problem.

I will point out another problem, which is the Massachusetts law is contingent on data transfers of diagnostic and repair information via the OBD, or onboard diagnostic-II port, under the dashboard. That is only there because of the Federal Clean Air Law.

Electronic vehicles don't have that port because they don't have emissions. So, in the very near future as we shift to electronic vehicles that data access port will no longer be there. It will all be telematics data. So, the utility of the Massachusetts law is going to decline over time going forward.

Again, when you start talking about right to repair you become like this crazy person who talks about right to repair every time it comes up. One thing I try and stress to people when I talk to them about auto repair is if you live in Michigan or California and you have taken your vehicle to the local independent repair shop, you have only done that because the voters in Massachusetts passed a ballot measure over a decade ago, and then updated it in November 2020.

That is the very thin thread that our right to use independent auto repair hangs by in this country. That is not the way it is supposed to be.

This is something that affects vehicle owners, hundreds of millions of them in all 50 States. It is the type of thing that the Federal Government needs to address with Federal legislation. It should not hang by this very thin thread.

Mr. JOHNSON of Georgia. Thank you.

Professor Hartline, are software updates new creations and, thus, copyrightable?

Mr. HARTLINE. Software updates, yes. They are computer programs and Congress said explicitly in 1980, but it was understood before then, that computer programs are literary works, and they are protected just like any other copyrighted work.

Mr. JOHNSON of Georgia. Thank you.

Mr. Professor Perzanowski, do you disagree?

Mr. PERZANOWSKI. I don't disagree at all that software updates are protectable subject matter under the Copyright Act.

What I think is important to keep in mind, right, is the Copyright Act, and copyrights, exclusive rights, and all the exceptions and limitations to copyrights, exclusive rights, are created by Congress. So, if you think those rights are interfering with other important issues and concerns, then I think Congress has, clearly has the power to make changes to the copyright law to best serve what you ultimately determine to be in the public interest.

Mr. JOHNSON of Georgia. Thank you.

I yield back.

Mr. ISSA. Thank you.

I am going to followup just very briefly on that.

Mr. Hartline, you said that it is a right. We already talked about abandonment. Let's leave the abandonment alone for a moment.

Copyright is not a right to exclude, as you know. For the most part, copyright you get a reasonable fee or license. If I have a piece of music, I don't inherently have the ability to stop people from performing and the like. So, we understand it is different than patent in the sense of the right to exclude is not traditional.

Let me ask you an important question: If I give away my software to every single person. I put it online and allow you to update it. I even push it through to try to encourage you. Matter of fact, I make it to where it is a nuisance to use your iPhone if you haven't updated because it is going to give you the red thing. If I do all of that, have I in fact, to a great extent, made my copyright a public domain for purposes of authentic users of the material using it at their own pleasure, for example, that iPhone 8–10, the archived copyright when Apple no longer updates?

Mr. HARTLINE. So, I disagree with your premise, respectfully, that copyright is a right to exclude. Right? We can exclude other people from making copies, from distributing copies, from performing, and from displaying.

I understand what you are saying. If you are putting out these software updates and people download them, the person who created those things is not giving up their rights because you have to distinguish between the copy, which the recipient gets, and then the copyright, which the copyright owner has.

Mr. ISSA. I understand. You don't, nobody gets ownership of the original text, software, and the like. The fact is that if you give free to many, do you give free to all?

Mr. Roberts, you were shaking your head perhaps a little differently.

I would like to close this off by having people answer that basic question of if you are a company, and we will leave company names aside, but you make VOIP phones, and you push through not only the original firmware, but all the updates for months or years, and then a hypothetical, the transfer of that product, they simply say, well, you no longer own that. Is that really consistent with the existing law, recognizing that we have the right to change law, but even under existing law?

Mr. ROBERTS. I think it is unclear. I am not a lawyer, so I don't want to weigh in on that.

All I would say is that the cost to society of manufacturers being able to reach beyond the point of sale and exert that type of control on sale and reuse of their products is very high for consumers. From a cybersecurity standpoint presents many problems in terms of maintaining, again, a secure ecosystem of deployed devices that are internet connected.

Mr. ISSA. OK. My last closing statement was my opening statement. We all understand that there is what we call a standard patent, one which you do not have the right to exclude but, rather, because it has been put into use as a standard essential patent, it therefore is entitled to reasonable royalties, but not to exclusion.

Who would like to make the case that an equally standard essential copyright should not and does not effectively exist when it becomes essential to the continued operation of a product, or even

when that copyright becomes part of the standard? Who would like to argue against it?

Yes?

Mr. PERZANOWSKI. So, I think this idea of a standard essential copyright is getting at something really important. Right? Access to firmware and other code is really essential to the functioning and repair of lots of devices.

I think there are some important differences between the standard essential patent context and what we are talking about here is that the standard essential patent context we are relying on standard-setting bodies to identify technologies, and to require companies to license their patents under fair, reasonable, and non-discriminatory terms.

We don't quite have that infrastructure in place in the copyright context. What we do have are compulsory licenses that exist within the Copyright Act already, one of which you were alluding to earlier, the mechanical license for musical works.

We also have compulsory licenses for retransmissions of satellite and broadcast content that essentially say the copyright owner is entitled to compensation of some form, but they are not entitled to prevent people from using or accessing that underlying work.

That could be a useful framework here for getting owners of devices access to the firmware that they need.

Mr. ISSA. Well, and that is to be continued, as you can imagine.

This concludes today's hearing. I want to thank our witnesses for not only being here but staying into overtime.

Without objections, all Members will have five legislative days to submit additional written questions for the witnesses, and additional materials for the record.

With that, we stand adjourned. Thank you.

[Whereupon, at 12:22 p.m., the Subcommittee was adjourned.]

All materials submitted for the record by Members of the Subcommittee on Courts, Intellectual Property, and the Internet can be found at: *https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=116230*.

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