

An Argument for Right to Repair

Independent repair businesses are struggling to survive, but at the same time owners of equipment with digital electronics are unable to keep their equipment operational. We need to make our products last longer. Electronics manufacturing strains the limits of our natural resources while usable products and device components are thrown into landfills or scrapped, instead of salvaged, fixed, and reused. We need to support local repair businesses' ability repair our products.

Consider if the only source of repair for your out-of-warranty car was the OEM's dealer. What if the dealer held the only codes to access the diagnostic system? What if you lived hundreds of miles from the nearest dealer and all the local mechanics were not allowed to repair your car? This is happening in the field of electronics service today.

Manufacturers are abusing intellectual property laws to guarantee a monopoly on service. They use their monopoly to set extremely high repair prices. If a product cannot be economically repaired, it cannot be resold, which pushes consumers to replace their products more and more frequently.

Consumers have the right to repair their own products or have them serviced at independent repair facilities.

1. Consumers and product owners should have the right to decide who repairs their products.
2. Creating an economy around extending the lifespan of manufactured goods will create local jobs.
3. Repairing and maintaining electronics requires information, parts, and tools from the product designers. As manufacturers add electronics to more and more products, it is shutting out independent repair organizations.
4. The knowledge and tools to repair and refurbish products should be distributed as widely and freely as the products themselves are. In contrast to centralized manufacturing, reuse must be broadly distributed to achieve economies of scale.
5. Extending the lifespan of manufactured goods will benefit the environment, easing the demand on natural resources and keeping electronics out of landfills.

Policy Objectives: Allow owners and independent repair facilities to have access to the same diagnostic, repair information, and parts made available to the manufacturers' dealers and authorized repair facilities.

1. **Manuals:** Make publicly accessible, standardized service manuals in an electronic format.
2. **Parts:** Make service parts available at non-discriminatory pricing to third parties. Make patent licenses required to produce repair parts available under FRAND (fair, reasonable, and non-discriminatory) licensing.
3. **Diagnostics:** Make troubleshooting and diagnostic tools, codes and service software available.
4. **Software updates:** Allow service providers access to machine code and firmware updates.
5. **Licenses:** Do not allow companies to create contract language (EULA) that removes these rights.

Each of these areas has a specific section in the bill. If any of these five areas is blocked, then repair is made difficult, inefficient, or impossible. Policies intended to thwart independent repair also thwart owner-repair so the language must be applicable to owners who can then appoint agents. **Authorized repair is NOT independent repair** because the authorized repair facility is an extension of the manufacturer and is never directly competitive.

Key Issues

- **Support small business:** local companies can't compete without the same tools and information that the big dealers have.
- **Guarantee free market access:** independent local repair shops that are fundamental to the American way of life are under threat.
- **Protect local jobs:** Most manufacturers produce their products in Asia. Right to Repair will create local jobs.
- **Preserve critical metals:** Rare Earth metals are essential for our domestic electronics, renewable energy, and military industries. Recycling cannot (yet) recover critical metals and rare earths from waste electronics, so repair is the only way to keep these critical metals in use here in the US.

Why States? Repair is a physical action made on a specific tangible asset. As such, digital repair is always local, in the same way that auto repair is local. The Automotive Right to Repair Bill that passed in Massachusetts clearly addressed issues that were under the state's jurisdiction.

States control contracts and have a particular interest in fair and equitable terms and conditions. Many of the limitations manufacturers impose on repair are part of purchase contracts, posing a significant problem for consumers as the "boilerplate" and rarely divulge the future costs of dealer-only repair requirements.

Repair does not infringe on copyright. Changes to copyright law might help clarify how much control an owner has over functions such as "unlocking," but the repair policies addressed in this bill are independent of copyright issues. Unlocking cannot repair a broken connection or fix a fried chip.

Expert Guidance

Guidelines on electronics reuse released in April, 2012 by respected engineering association **VDI** 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.**

Repairing and refurbishing electronics has tremendous potential to impact carbon emissions. A recent report by **McKinsey & Company** and the **Ellen MacArthur Foundation** found that increasing reuse and refurbishment could reduce the production of emissions of mobile phones by 3 million tons of CO₂. 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.

An **Illinois Economic Activity** survey recently showed that repairing electronics creates 13 times as many jobs as recycling it. The problem that repair centers are facing now is that they cannot negotiate directly with each manufacturer for access to critical information—there are too many products and too many manufacturers. So many products end up 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.

Potential Obstacles

Warranties: This bill will not require any changes to manufacturer's warranty policies. Most independent repair is post-warranty repair and used to extend the use of the product rather than replace the product.

Product Replacements: There are products with very short market lifespans. This bill will not impact the ability to innovate and make new and attractive products—it merely provides the owner with the option to keep what they have already bought working. Manufacturers have always had to compete against their own used products. This has been a major driver for innovation in the American automotive industry, driving manufacturers to create safer cars every year. Eliminating competition for repair also eliminates the need to truly innovate.

Intellectual Property: This is the most technical of questions and deserves elaboration. The act of repair is not an act of infringement. The use of manufacturer-provided diagnostics is not infringement, nor is the use of manufacturer-provided patches and fixes. Restoring the product to functions as specified does not proliferate or pirate IP. Even so, there are a number of manufacturers making claims that legal repair somehow harms their IP. These claims are legally unjustified, but are used to frighten customers away from legitimate repair businesses.

However, there are products which are designed with software functions to prevent unauthorized use of the machine. The IP for these security functions is withheld for some products in order to thwart piracy of other IP—preventing copying of movies on a DVD player, for example. This often impacts repair because opening the machine with a digital “key” is not always distinguished from opening the machine to do something illegal. We do not want to ignore these problems and are working with intellectual property concerns to comply with in-chip IP protections. Past Automotive Right to Repair legislation has incorporated satisfactory compromises around locksmith access to electronic keys, for example.

Opposition: No bills are without detractors. Manufacturers will fight legislation that interferes with their high-margin repair pricing. We know that manufacturers of products built cheaply in Asia will object, because the option to repair equipment interferes with their business model based on churning out rapidly obsolete product replacements. Even so, many quality American manufacturers and retailers support right to repair. Over the long run, free market competition is good for everyone, including the manufacturers.

Political Landscape: This is not a partisan issue, but the aftermarket auto industry worked in Massachusetts because of its history as a pro-consumer state. We believe free-market conservatives also see the importance of open markets and competition to spur job growth. Right to Repair is both an opportunity to lead on a populist issue and produce genuinely bi-partisan legislation.

Three Reasons Right to Repair will Drive Job Growth

1. Relocating repair businesses will be attracted to states with repair-friendly statutes. This will include depot-repair operations as well as customer-facing locations.
2. Businesses with heavy tech usage will prefer to settle in states with Digital Right to Repair because those businesses will be better able to manage their tech ownership costs. This is a definite draw for major data centers and cloud hosting facilities, as well as large distribution operations and medical centers. As more and more industrial products incorporate digital parts, **farmers and owners of heavy industrial equipment will see dramatic benefits.**
3. Repair jobs have been lost in many markets as product replacements (particularly consumer products) drop demand for repair. Fortunately, some gaps in the manufacturer's planned obsolescence strategy have been found by organizations like iFixit. **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 jobs that never existed before.

Right to Repair is a growing movement: 86% of voters in Massachusetts supported a right to repair ballot measure, even after the bill had passed in the legislature and had minimal advertising supporting it. The wired generation is also enthusiastic: 114,000 signatures were delivered to the White House in protest of the Librarian of Congress' decision to make mobile device unlocking illegal. These younger people are typically not traditional conservative voters, which is an enormous opportunity for outreach.

Local recyclers and environmental organizations are also highly supportive of repair. Fast product replacements have led to an unprecedented amount of electronic waste, and state budgets are struggling with significant disposal costs.

Background

Kyle Wiens is the co-founder of the largest online repair manual, iFixit, which has developed repair manuals, tools, and parts for consumers and mobile device repair shops. iFixit's millions of active members represent consumers and repair businesses in all 50 states. Kyle is a software engineer, is active internationally working on issues of e-waste, repair, and intellectual property, and is a well-known writer for Wired Magazine, Atlantic Monthly, and many other publications.

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