



1111 19th Street NW > Suite 402 > Washington, DC 20036
t 202.872.5955 f 202.872.9354 www.aham.org

WRITTEN STATEMENT

SARAH FAYE PIERCE
DIRECTOR, GOVERNMENT RELATIONS

ON BEHALF OF
THE ASSOCIATION OF HOME APPLIANCE MANUFACTURERS

VERMONT GENERAL ASSEMBLY
VERMONT TASK FORCE

RIGHT TO REPAIR

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Co-Chairs Senator Christopher Pearson and Matthew Hill, thank you for the opportunity to share the view points of the home appliance manufacturing industry regarding the potential impacts of the concept of right to repair during the October 9, 2018 meeting of the Vermont Right to Repair Task Force.

AHAM represents manufacturers of major, portable and floor care home appliances, and suppliers to the industry. AHAM's membership includes over 150 companies throughout the world. AHAM members employ tens of thousands of people and produce more than 95% of the household appliances that are shipped for sale within the United States. The factory shipment value of these products is more than \$38 billion annually. The home appliance industry, through its products and innovation, is essential to consumer lifestyle, health, safety and convenience. Through its technology, employees and productivity, the industry contributes significantly to the US job market and the nation's economic security. Home appliances also are a success story in terms of energy efficiency and environmental protection. The purchase of new appliances often represents the most effective choice a consumer can make to reduce home energy use and costs.

As articulated during my discussion with the task force, AHAM believes that so-called "Right to Repair" concepts are overly broad. A basic reading of the definition of "Digital Electronic Product" can be interpreted to include the home appliance industry and, therefore, raises serious questions that AHAM strongly urges the task force to carefully consider.

Home appliance manufacturers are continuously innovating in order to make better and more functionally convenient products for consumers. This includes ensuring that consumers have access to highly educated, trained and certified repair technicians. Home appliance manufacturers not only ensure that authorized repair providers are properly trained and certified, manufacturers also take necessary precautions so that when a repair provider enters a private home that the home owner as well as the property are safe and secure. The fact that repair providers enter consumers' homes to conduct appliance repairs presents a different set of circumstances regarding the repair of digital electronic equipment.

AHAM believes that so-called Right to Repair concepts come into conflict with important industry doctrines:

- Safety: so-called Right to Repair poses serious product, property and consumer safety concerns.
- Cyber Security: so-called Right to Repair requires manufacturers to make certain technologies available to independent third parties who may not have the proper certification and training thus exposing the home to cyber threats.
- Manufacturer's Warranty: so-called Right to Repair could negate manufacturer's factory warranties.

Safety

Safety is a top priority for AHAM members. The industry designs appliances that are as safe as they are useful and consumers recognize this commitment. Today there are more than 860 million appliances in use largely without incident and 93 percent of consumers believe home appliance manufacturers do a good job in providing safe and quality appliances. Moreover, another 85 percent understand that safety policy is a top priority for the industry. The primary reason that so-called Right to Repair is of concern to the home appliance industry is the broad safety concerns raised. There are three principal safety concerns: product safety, consumer safety and property safety.

Product Safety

Right to Repair concepts require that manufacturers make all diagnostic and repair documentation available to independent third parties or equipment owners. Today, home appliances contain highly advanced operating systems and many of these products are considered smart or connected devices.

Manufacturers develop diagnostic tools for certified engineers who have the educational and technical background and training necessary to troubleshoot, diagnose and conduct repairs to the appliance. A right to repair concept would broadly expand the universe of technicians that could access diagnostic tools and information. Also, manufacturer authorized servicers are typically required to perform repairs with manufacturer authorized parts that have been tested and qualified to meet the reliability and safety requirements of the home appliance product. Opening up the repair process to any third party services will loosen the control in this area significantly and could have a considerable impact on the safety and reliability of the product. In addition, manufacturers control the software used for service technicians. Without proper training, significant damage to the appliance and the home can occur if these tools are improperly used.

Today, modern appliances contain sophisticated and technologically advanced electronics and internal controls that are uniquely designed and programmed for specific products. These electronics and internal controls contain safety features (both software and hardware) that are relied upon for the safe operation of the appliance. Manufacturers very strictly and carefully control the access to these features by certified service professionals when performing any diagnostics and repair. Manufacturers often invest substantial resources to ensure diagnostic tools are impervious to failure and tampering by the manufacturers own agents, the manufacturer will employ software and Information Technology tools specific to its agents to guarantee the service. The same cannot be ensured once these tools are opened up to unaffiliated third party servicers. It could be detrimental to the inherent safety of the appliance if access were to be granted in the public domain where defeating any of these features (either intentionally or inadvertently) could happen during diagnostics and repair, which could then create potential safety hazards to the consumer.

For example, the home appliances industry is constantly innovating and advancing our products in order to deliver optimum solutions to consumers, which are energy efficient and continually

better for the environment. Newer refrigerant gases that are non-ozone depleting and have very low global warming potential are an example. Comprehensive training is required in order for a technician to handle and conduct repairs on systems that contain different types of refrigerant. Mixing refrigerant types can be problematic and dangerous. An older product designed to operate with R134a gas refrigerant does not have the appropriately designed relays and electrical mechanical components for the newer R600a refrigerant. R600a gas is a flammable refrigerant gas that has positive attributes to reduce climate change and has started to be added to new refrigeration products in the U.S. market. It is critical that technicians are properly trained to identify which product utilizes which gas and how the gas is properly handled to ensure the utmost safety.

Authorized servicers can be directly trained and tools provided to 1) allow technicians to understand the systems included on every model and 2) repair those products appropriately. The same concerns hold true for the manipulation of LPG and natural gas in cooking products, dryers and water lines and the appropriate manipulation of 110V and 220V electrical connections. If not properly installed, leaks and overheating can occur.

Most appliance products are required by National Electric Code as well as other applicable building/mechanical codes to be listed or certified under applicable North American Safety Standards (such as Underwriter Laboratories or UL standard). These safety standards ensure a product and all of its components will operate in a safe and reliable manner. Right to Repair evades many of the safety provisions that Underwriters Laboratory (UL) and others test against.

For example:

Underwriters Laboratory North American Dryer Safety Standard (UL2158/CSA 22.2 no. 158)

This UL safety standard has safety requirements such as motor overload protection, door/lid opening or temperature limiting. These requirements were put in place to mitigate risks of electrical shock, injury or fire. Manufacturers often design the electronic controls which are embedded into either hardware or software and often both work together systematically to ensure the system operates safely and meets the UL requirements. To ensure the safety critical functionalities are reliable, both the hardware and software of these controls are certified to applicable safety standards (i.e. UL60730 or UL60335 or specific requirements of the product safety standard). These standards have rigorous requirements to test and validate the required safeguards. The standards are stringent to the point that any design or manufacturing changes to these components by a manufacturer often requires recertification by a Nationally Recognized Testing Laboratory (NRTL) to the applicable standard in order to ensure that the required safety functionality has not been compromised.

Manufacturers apply the same rigor to the repair and or replacement of these components when training their service personnel as well to the service parts themselves. More often than not, OEM service parts and components are also listed or certified to the same safety standards as the appliance product. The potential safety impacts of a repair and replacement are complex concepts and topics that manufacturers have to incorporate into service training on an ongoing

basis. Authorized service personnel training is generally an interactive, detailed, time consuming and resource intensive process, utilizing trainers and engineers. An unauthorized or general service repair person will not have the benefit of this rigorous training and most likely will not understand nor be aware of the complex and integrated safety functionalities of the system and may compromise the integrity of the product during a repair.

Underwriters Laboratory (UL) North American Washer Safety Standard (UL2157/CSA 22.2 no 169 High efficiency (HE) washers employ electronic lid switches to ensure that no one can access the rotating basket while it is spinning very fast. These switches are often controlled by the Electronic control, which monitors the lid switch signal and employs a braking mechanism to stop the basket from spinning if a user opens the lid. The same components are also utilized for other functional and safety requirements. Diagnosing and repairing a similar HE washing machine requires an in-depth understanding of the full system which authorized servicers are given as part of their training. An untrained servicer may employ a repair using a non-OEM part or incorrect connections can compromise the whole system that may result in a potential safety issue and/or performance degradation.

Property Safety

Appliance repairs when not performed correctly can be the cause of property damage, e.g., flooding and fires. Insurance claims as well as increases in homeowner's insurance premiums could result if independent third parties improperly perform in-home repairs. Additionally, in the event of significant property damage and/or personal injury, the manufacturer could face legal claims.

Manufacturers, in general, have process and procedures in place that track repairs completed through their servicer network. This allows the manufacturer to create traceability of repairs for their customers/consumers and is one of the critical factors if fire or another sort of property damage were to occur. Opening up this domain to third-party servicers, inhibits the ability for manufacturers to track any repairs made to home appliance products and has the potential to create issues in determining liability if the source of the repairs cannot be readily identified. Traceability is also important because improper repair or servicing can be a cause of appliance fires. Finally, this assists insurance companies and other entities if the incident requires investigation.

Consumer Safety

The nature of appliance repairs requires repair technicians to enter the homes of consumers. In-home safety and security is of paramount importance to appliance manufacturers and we assume the same holds true for independent service technicians. Manufacturers who certify technicians may require extensive background checks as well as drug screening, and as previously mentioned technical and safety training. If manufacturers are required to make their technical information public knowledge, they no longer have the ability to address whether the technicians who are entering the homes of consumers have completed the necessary technical, safety and security checks.

Cyber Security

In an increasingly connected world, the threat of cyber-attacks has extended into the home through connected technology. In fact, connected devices will be in nearly every home by 2020, and the total number of those devices is expected to reach 26 billion. Home appliances touting “smart features” are already in the market. AHAM’s member companies are leading the way in bringing connected appliances to customers around the world and are committed to addressing those concerns so that consumers are able to access the full, life-enhancing potential of connected appliances while minimizing potential cyber threats. Without the proper training, independent third party service providers could unknowingly expose consumers to cyber threats while conducting un-secured repairs to these products.

Right to Repair concepts completely disregard security implications brought to light by requiring the release of firmware and other software systems within home appliances. Hacking, data privacy, cyber threats are real concerns, as homes become more connected. Right to Repair concepts have ignored these very real threats and will likely make home appliances more vulnerable to cyber-threats and corruption. For example, security key pairings have to be embedded in the firmware. If a manufacturer is required to provide the firmware to third parties, the manufacturer is providing the keys to the operating system, once the keys become public it completely breaks the firmware security chain and the home appliance is not fully secure.

This also applies to remote and wireless interaction. Connected appliances in some circumstances require Wi-Fi connectivity to the consumer’s personal in-home network. Manufacturer authorized technicians when performing repairs or instructing consumers on the use of such products could gain access to those private networks. Manufacturer authorized technicians are under contract, for whom the authorized service providers may have traceability. Opening that access up to independent third parties may give unauthorized personnel access to consumer's private Wi-Fi network and create opportunity for further risk exposure.

Manufacturer’s Warranty

Of course consumers are free to choose their service provider and replacement parts. But most manufacturers explicitly state that the warranty on the product is void in case of defects or damage caused by the use of unauthorized parts or service. That means that if a repair goes wrong, the cost of future repairs that might have been covered under the warranty could now be the consumer’s responsibility. As such, there is the potential to harm consumers rather than providing benefits.

Conclusion

Thank you for the opportunity to present testimony to the task force. Right to Repair concepts raise serious safety, cyber-security and contractual concerns for the home appliance manufacturing industry. AHAM strongly urges that this task force reconsider whether or not legislation is in the best interests of Vermont consumers.