RIGHT TO REPAIR

Written testimony by Louis Rossmann of Rossmann Repair Group Inc.

This document was prepared by Louis Rossmann of Rossmann Repair Group Inc located in NY City USA. Louis is a leading third party Macbook repair technician and Right To Repair advocate. He has been at the forefront of in particular, RTR changes for Macbook computers for the past 12 or so years. This document was prepared in support of Legaslative change in the US, but I feel that it is allied with our situation in Australia. I have Mr Rossmann's permission to edit this document, purely to make it more relevant to the Australian situation. Louis can be contacted here

The original unedited document is available here (because of a recent Google security update this URL will need to be copied into a browser rather than clicked on sorry)

https://docs.google.com/document/d/1phQRQlguivA689roB4-LmGWbLNOaxA_I2zH2E1aHhxE/edit?usp=sharing

Introduction

Years ago, if a consumer had problems with an appliance or electronics, parts and schematics required to fully service the product were easily obtainable. In recent years, it has become increasingly difficult to source components for electronics repair.

Original Equipment Manufacturers (OEMs) have restricted access to the parts and tools required for independent repairs to be performed. Some have clamped down so hard that even authorized repair centers are unable to obtain parts to do their job, having to replace the entire unit rather than replace a charge port (1) Manufacturer authorized repair centers are often not competitive or viable options by their very design.

We want Government to lower barriers to entry for independent repair shops, recognizing that they are a vital part of addressing the demand for quick and cost effective repairs. Independent repair is valued by consumers for its price, accessibility, and transparency. Consumers will have their needs met best by competition among independent firms. In my experience, companies that profit from decreased competition in the repair industry use

fear/uncertainty/doubt to scare legislators into sidelining the bill. I have provided all of their arguments below with cited counter-arguments. I believe that all arguments from companies that benefit from having monopolies in the repair industry that lack citations should be treated with reasonable skepticism.

Arguments in Favor

~Facts regarding Right to Repair~

Consumers own their electronic devices and should have the right to choose the best repair option for them — Once a device is purchased, the consumer should have full ownership. Manufacturers should not dictate the way in which devices are repaired. However, manufacturers are exerting unfair pressure on independent repair to cease and desist, by denying access to crucial materials such as original components and schematics. These business practices reduce choice for consumers when their device needs to be repaired. If consumers are able to perform essential repairs on their cars (e.g. replacing the brakes or changing the oil), it raises the question of why this should be different for their personal electronics.

Repair is a fast-track to the middle class — In a time of increasing wealth inequality, I can't think of a better industry for people to make their way into the middle class. I employ many people who did horribly in school, who are my best technicians. If you are good at solving puzzles and have a detective's mindset, you can do very well at repair even if you were a terrible student - as I myself was. There is a low barrier to entry to get started - you don't need a 4 year college education or $50,000 in tools to get into the field. Many people I meet who do well for themselves started doing this on the side after they were done working a minimum wage job at the end of the day and turned it into a $45,000-$90,000/year job for themselves.

Repairing devices is a potential learning experience for Australia's youth — Schools nationwide are investing in STEM curriculum to help students compete in the global marketplace (2) Access to schematics and parts means that students of all ages will be able

to safely make repairs and learn new and innovative technologies first-hand. As technology advances, so do the number of devices and appliances that utilise it. We need to prepare our children for this future by giving them the opportunity to understand and repair their devices. This knowledge of and experience with repair will aid them in becoming self-sufficient in the job market

Vendors are abusing customs enforcement to place an unfair burden on unauthorised repair — Vendors, such as Apple, have allegedly directed US Customs and Border Protection to stop aftermarket components, such as screens, from entering the country. While some of these components are counterfeit, many are explicitly branded as non-original. However, Apple and US customs enforcement agents seem to draw no distinction, preventing a wide array of previously viable repairs.

Electronic devices should be repaired to avoid E-waste — Recent trends in sales and maintenance show that vendors prefer to replace rather than repair (3) This practice creates expensive and unnecessary waste (4) If the manufacturer refuses to repair devices, the consumer should be allowed to contract with independent technicians to perform the repairs. Being forced to write off entire devices, because a relatively inexpensive or easily repaired part failed, is not economically or environmentally viable.

- Producing a computer along with its monitor takes at least 1.5 tons of water, 48 pounds of chemicals, and 530 pounds of fossil fuels (5)
- The excessive amount of lead in e-waste, if released into the environment, could cause severe damage to human blood and kidneys, as well as central and peripheral nervous systems (6)

There is demand for independent repair — Manufacturers are pushing consumers to have their devices serviced by a limited set of authorised repair providers. Unfortunately, such repairs often take too long and cost too much, as they often offer repair services that demand entire unit replacements rather than specific component repairs. Customers who are disadvantaged economically, and/or geographically get the short end of the stick having to travel long distances to an authorised repair centre, to hear that their only option is a $1500 repair for their $2000 device. This dynamic is incentivised by profit and easily perpetuated by restriction of repair materials. Access to service documentation, parts, and

diagnostic utilities would allow independent technicians to provide consumers with more options. Even if repairs are made using genuine, used, or 3rd party parts, built-in "digital locks" will detect and disable the machine until authorised technicians "unlock" the device. This intentionally disables certain functions, and in some cases, the entire device.

- The sole purpose of this locking technology is to prevent consumers and third party professional repair companies to repair devices without an authorised representative of the manufacturer being involved or, in the case of some Apple Inc. products, to disable devices that have been repaired. This leads to an unfair monopoly, stifles competition and frustrates potentially millions of consumers who may have paid good money for their devices.
- Even the *US Military* has been prevented from repairing their equipment by prohibitive service restrictions causing downtime during training exercises. Presumably our Australian Military forces face the same impediments to repair (7)
- Replacing an iPhone home button has the potential to disable the entire device even when the repair is performed properly.

Rebuttal of Arguments Against

~Dispelling myths surrounding Right to Repair~

The myth that the manufacture or their authorised repair centres are best suited to repair the devices that they manufacture

Take the example of a Macbook Pro laptop that does not turn on. In the past, if a charging chip died inside a $3000 Macbook Pro, you could have it fixed, independently of the manufacturer, for anywhere between $79 to $450. A technician could spend an hour working on the bad motherboard, find the bad chip amongst the hundreds of components on the board, and replace it. Let's say the charging chip died – a technician could go online, buy an ISL9239 charging chip for $15, and fix the board for their customer.

Fast forward to today, with the newest Macbook Pro which uses the Intersil ISL9240 charging chip. This chip is not available to anyone outside of the manufacturer. If that $3000 MacBook Pro's charging chip becomes defective, Apple will offer to fix it for $1500 by replacing the entire board—this is costly, and also erases all user data. This chip is not available for purchase because Apple has created exclusivity agreements with Intersil so they do not sell this chip to independent repair shops or electronics wholesalers. The only

way professional repair companies can get this chip (8) is by buying another item that uses it, such as Apple's "Smart Battery Case" that they sell for $129 ($189 AUD) After harvesting the chip from its board, technicians are left with a battery case containing a worthless lithium ion battery that now needs to be disposed of as E-waste. (9) (10)

This process:

- Is time consuming for the technician, increasing turnaround time and price to the customer.
- Is expensive for the technician as he or she is purchasing an entire device to harvest one chip, rather than buying the one chip they need, increasing turnaround and price to the customer.
- Is incredibly wasteful, as the lithium ion battery as well as the case are now worthless, and need to be disposed of.

Authorized repair services have no competitive pressure that would incentivise them to offer services that consumers need, such as data recovery. It's plausible that manufacturers don't make money on repairs, but they definitely do make money by selling replacement devices. Lobbyists for these companies draw attention to tools already available but they omit the true availability and functionality of such tools.

- Apple's "RepairCal" software is a prime example: The software is used by the manufacturer to calibrate displays and sensors. Although technically available for independent repair, it will not function appropriately outside an authorised repair environment as it needs to contact Apple servers. This means that even if the independently completed repair is flawless, calibration cannot be completed to restore full functionality to the user.

"Unauthorised repair is unsafe" — In short, there is no credible evidence suggesting that independent repair technicians or their customers are in any danger. In a 2019 AutoZone Commercial titled "I did it", a mother and young daughter were able to service the brakes of a motor vehicle (11) We allow Australian citizens to service their own brakes without any prior mandatory education, yet lobbyists argue that simple electronics repairs, such as battery replacements, are too dangerous. The decision of whether to allow Australian's to repair devices should not be up to the vendors but to the consumers who are ultimately accountable.

"**Unauthorized repair does not have the training to do the job properly" —** Here (12) you can find an example of a company listed as authorised on Apple's website for iPhone repair telling a potential customer their charge port and headphone jack are soldered to the board, when they are not. Here (12) CBC News showcases an Apple Genius quoting a customer $1100 to $1900 to fix a machine by replacing the top case, logic board, and display assembly when all it needed was a $5 cable replaced (a $150-$200 repair at most repair shops), which was fixed in the moment by bending back a bent pin. Authorized repair providers are often held to strict rules by the manufacturer— rules that often prevent them from doing actual repairs, and instead only offer full device swap-outs & replacements. Sadly, ten minutes of research is often all that is needed to be better informed than a manufacturer authorised repair provider.

"Security will be compromised" — Providing the schematic for the arrangement of hardware components does not, in any way, unlock the software of a device. Most parts are already available in some form, such as salvage from old hardware, and independent repair providers already exist without any negative impact on digital security. The only true security issue present is "Security Through Obscurity," a widely debunked practice of relying on attackers not knowing how a product works in an attempt to secure it. The assertion that independent repair providers seek to profit from software or video-game piracy is unfounded. Replacing a fan or battery is not the same as breaking a digital lock.

"Quality and branding will be compromised" — Independent repair shops are competing with each other and authorised repair. As a result, they have a financial incentive to provide quality and honest services. There is no compelling evidence to suggest that independent repair technicians in general provide lower-quality services or act in any malicious manner. Consumers recognise that it is often the independent repair providers who uphold higher quality standards, especially if they are given access to official schematics and parts.

"Consumers already have many options" — Consumers have the following options, each with its own issues:

- *Repair by original vendor:* Has a financial interest in making repairs inaccessible and unattractive (in terms of time, money, and types of services) to promote the

purchase of replacement devices.

- *Authorised repair providers:* Are bound by the conditions of the original vendors, and as a result, are unwilling to provide a wide array of repairs. Some authorised repair providers must maintain a quota of selling a certain amount of new devices to maintain their status, further compromising their willingness to provide simple, affordable repairs5
- *Independent repair providers:* Cannot easily access original schematics and parts without changes to the current status quo. In addition, they live in fear of industry actions and litigation (13) Old appliances such as stereos, televisions, and computers would often come with schematics to aid self-service. As this is no longer the case, legislation is required.

- **"Trade secrets will be compromised" —** The information that is needed to repair electronic products is already obtainable by measuring values on a known functional unit. A schematic is simply a standardised format for displaying that information and does not include proprietary software, firmware, or similarly proprietary information. Right to repair groups are only asking for a method to update embedded software/firmware to prevent a company holding back updates only they can perform. They are not asking for copies of proprietary firmware, as has been alleged by opponents of RTR

"There will be a major burden upon OEMs" — Repair technicians are not necessarily asking for repair materials to be made available free of charge. They would prefer to pay a reasonable price and compensate vendors for their efforts in adapting and publishing those materials. However, as vendors allegedly already provide materials to authorised repair, the materials already theoretically exist and can be redistributed.

Footnotes

(1)https://youtu.be/OR5ZUl0Q-NI?t=87

(2)https://www.bls.gov/careeroutlook/2014/spring/art01.pdf

(3)https://globalewaste.org/wp-content/uploads/2018/10/Global-E-waste-Monitor-2017.pdf

(4)https://www.epa.gov/sites/default/files/2019-11/documents/2017_facts_and_figures_fact_sheet_final.pdf

(5)https://collections.unu.edu/eserv/UNU:6341/Global-E-waste_Monitor_2017__electronic_single_pages_.pdf

(6)https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4957139/

(7)https://www.nytimes.com/2019/11/20/opinion/military-right-to-repair.html

(8) https://www.youtube.com/watch?v=JLIWDKA-1Tw

(9)https://www.apple.com/au/shop/product/MU7M2ZA/A/iphone-xr-smart-battery-case-black?afid=p238%7CsJWJVHlpe-dc_mtid_18707vxu38484_pcrid_339469667714_pgrid_75111492424_&cid=aos-au-kwgo-pla-btb--slid---product-MU7M2

(10) https://www.youtube.com/watch?v=HJ2jyo7pAmE&t=769s

(11) https://www.ispot.tv/ad/ok12/autozone-i-did-it

(12) https://youtu.be/_XneTBhRPYk?t=41

(13) https://www.ifixit.com/News/8210/rossmann-repair-legal-threat