

# SB542

Romain Griffith  
Hyperion Computerworks  
503-465-5906  
hello@hyperioncomputerworks.com

My name is Romain Griffith. My partner Kate and I own and operate Hyperion Computerworks in the Garden Home neighborhood of Southwest Portland.

We are a trusted staple in our local community, offering support for any technology problem they face. We are here to testify in support of Senate Bill 542.

This year, my testimony will focus on the importance of schematic diagrams as they relate to component level repairs.

A component level repair is when you repair a part rather than replace it. Phones and tablets have their components soldered to the logic board, including data storage. There has been a growing trend of designing computers the same way, with the charge being led by Apple. You might need a component level repair if your device doesn't power on and you'd like to recover its data or if you don't want to spend \$1000 on a logic board.

A possible point of failure on any circuit board is a capacitor, often a brown cube smaller than a grain of rice. A cracked capacitor can cause a short to ground, disabling the device. If there are any identifying markings, they will be a reference designator like C123, short for capacitor one hundred and twenty three. That designator refers to the schematic where you will find the exact specifications of the component to be replaced, which could be one of a million different possible candidates. The component itself costs pennies, and a skilled technician can identify the fault and replace the part within a matter of hours.

If the schematic is not available, the capacitor cannot be identified, and the logic board cannot be repaired.

For some devices, schematic diagrams do eventually leak and get shared in repair communities. Where that hasn't happened, we've been harvesting the needed component from the same location on an identical donor board. For a very recent device, that means that we're buying and disabling a working unit to recover data from another.

We looked into Apple's Authorized repair program expecting to find access to parts, tools, training resources, and schematics. Apple required that we open a one hundred thousand dollar credit line with them and commit to sales quotas for new devices. There are restrictions on the age of devices that we would be authorized to repair - while a Mac receives security updates for 10 years, Apple doesn't seem to want them fixed after 5. We came to discover that not only would we not be provided with board schematics, but we would actually be prohibited from performing component level repairs. Apple required that we agree to let them audit our business on a whim. Any parts that had not been purchased from Apple would be considered contraband, with the contract describing that as punishable by fines, revocation of our "Authorized" status, and the threat of lawsuits.

So what happens with damaged logic boards at Apple Authorized shops? The original is replaced with a new one, shipped for repair to a refurbisher in a country with relaxed labor laws, and the data is never returned to the customer.

Apple's independent repair program has the same restrictions, including "contraband", but it is limited to ordering screens and batteries for iPhones. There's nothing for Macs, no tools or training resources, and a business owner can only place an order after providing the serial number for the previous part. Inventorying is not possible, which means that repairs would have a one to two week turnaround. Pricing of Apple's parts is also contingent on shipping back an original OEM part - if you were replacing an

aftermarket battery, Apple's replacement would suddenly cost more than twice as much. From my perspective as a repair shop owner, the program only exists to say that it exists and to deliberately render the independent repair shop experience subpar compared to theirs.

Last year, Apple launched their self-service repair program. You only need to go looking for a replacement charge port for your iPhone to find it lacking. The price to purchase a part and rent the tools is the same as Apple's except that you do all the work. The factory-grade tools ship in an 80-pound pelican case, giving consumers the illusion that these repairs are a lot more sophisticated than they actually are. It's like putting a car back on the assembly line when a socket wrench would have sufficed.

Electronics are in so many of our everyday items. As you consider this legislation, please consider the precedent that will be set. To protect their profits, manufacturers aim to ensure they're the only ones who get to decide if, when, where, and at what price consumers can get their electronics repaired.

The owner of a device should be free to fix that device themselves or choose a provider to fix it for them. The manufacturer of any product has a responsibility to ensure that the usable life of that device can reach its full potential.

I am happy to take any questions you may have. If others come up in the future, you can contact me at Hyperion Computerworks in Southwest Portland.