



August 11, 2022

The Honorable Kathy Hochul
Governor
New York State Capitol Building
Albany, NY 12224

Re: Apple Inc. Veto Request for SB 4104A

Dear Governor Hochul:

We respectfully urge you to veto SB 4104A, the Digital Fair Repair Act. If passed, the bill would undercut the state's pro-consumer goals and create requirements that are inconsistent with modern data-security and repair standards for consumer electronic products. While SB 4104A purports to expand safe and effective repair options for consumer electronic products, the bill would not only fail to accomplish that goal, but it would also harm consumer security, privacy, safety, and transparency; invite legal challenges; and do nothing to advance New York's environmental goals. We will briefly walk through the most problematic elements of the bill.

- **SB 4104A Harms Consumer Data Security & Privacy, Safety, and Transparency.** The bill undermines consumers' ability to keep their data secure, maintain their privacy, safety, and ensure transparency (part history) throughout the repair process. The bill's mandate that manufacturers allow repair providers access to any electronic security lock would raise the risk of consumers' data being breached by bad actors who will have greater access to consumers' sensitive information. The bill would also prohibit manufacturers from utilizing an internet connection to authenticate repairs. Without the internet, manufacturers would lose the ability to guarantee a secure authentication mechanism to inform consumers whether a given repair was performed with a genuine part, a third-party part (the quality of which, in some cases, can significantly impact the consumer), or a part installed from another device—leaving consumers unable to determine the history, reliability

and safety of the part used. Transparency and accountability from repair providers to their consumers would be greatly reduced.

- **SB 4104A Violates the United States Constitution.** As written, SB 4104A violates several provisions of the United States Constitution, including the Takings and Commerce Clauses. The bill would (1) attempt to regulate conduct outside of New York, (2) erect compliance obstacles with federal law and (3) force companies to divulge intellectual property without adequate compensation.
- **SB 4104A Fails to Address Environmental Concerns, Including the Problem of Electronic Waste in New York.** New York holds Apple and all manufacturers to high standards for preventing e-waste under New York's electronic waste laws. We know that is an important goal of your administration. But SB 4104A does not include any e-waste recycling standards for repair providers, which will increase the likelihood that devices and used parts end up in the New York waste stream rather than being properly recycled, as Apple does for all of its repairs.
- **SB 4104A is Poorly Drafted and Overbroad, Complicating Compliance Efforts.** Modern electronic devices require internet connectivity to function effectively, and devices require the internet to distribute software and authenticate parts after a repair. The bill's prohibition on manufacturers ability to build internet-connectivity into the repair process would upend current repair standards and harm consumers, who benefit from the timely transparency that comes from this authentication.

Furthermore, the bill purports to apply to all products, including legacy products on the market. It would be practically impossible for manufacturers to comply with the obligations of SB 4104A as they have no good means to retroactively alter the design of products already in customers hands.

These and other issues created by ambiguities and inconsistencies within the statute would pose serious hurdles to compliance with the bill.

Conclusion

We have included a more in-depth analysis of our points on these complex issues below.

Apple is committed to building on the major improvements we have made so far to enhance the options small businesses and consumers have to repair their products safely and securely. We are continually looking at new ways to improve and would welcome the opportunity to work with your administration on a bill that ensures that the marketplace for digital electronics allows and encourages repairs that can be performed without compromising consumer rights.

Due to the consequences this bill would have on consumer security and privacy, safety, and transparency; as well as the litany of constitutional, policy, and practical issues with SB 4104A, we respectfully urge you to veto this bill.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Michael Foulkes". The signature is fluid and cursive, with a long horizontal stroke at the end.

D. Michael Foulkes
Director
State and Local Government Affairs
Apple Inc.

A more detailed analysis of each of these points follows:

SB 4104A Harms Consumer Data Security & Privacy, Safety, and Transparency.

Apple's products and repair networks provide critical protections for consumer security and privacy, safety, and ensure transparency with respect to repairs and replacement parts. The bill would undermine these protections.

Privacy & Security. Apple designs its products to protect users from bad actors that try to access their data by using a hardware component, Secure Enclave. The bill would force Apple to provide any owner or independent repair provider with access to open "electronic security lock or other security-related function" incorporated into the device. SB 4014A §§ 399-nn-2(b). Providing such access would allow bad actors to bypass the numerous security protections embedded in Apple devices. A bad actor could more easily tamper with the Face ID sensor to spoof images or gain access to sensitive customer information. This could happen without the customer even knowing anything is wrong until it's too late.

The bill would also prohibit manufacturers from implementing a secure authentication process via an internet connection. The internet-based authentication and calibration process empowers all repair shops, large and small, to conduct secure repairs *without* ever accessing a user's passcode, a critical security protection that promotes consumer trust. If passed, the bill would prevent this internet-based repair process and would result in more repair providers asking customers for their passcodes to complete repairs. This could unnecessarily expose customer devices to attacks on personal data like bank account information, home security codes, and family photos.

The bill should include exemptions for important security and privacy measures rather than threaten those consumer protections.

Safety. Safety is a top priority for all of Apple's consumer product designs, repair parts, and service networks. For example, Apple takes particular care in the design of its high-energy lithium-ion battery components to reduce the risk of battery overheating events that occur with batteries that are not certified to international standards or are installed improperly. Faulty repairs or the installation of non-genuine or harvested parts that are defective have real consequences for consumers, who have been injured or hospitalized as a result of such battery overheating events.

Transparency. While Apple agrees that customers have a right to expanded repair options, customers also have a right to know whether replacement parts used in repairs are authentic and that repairs are conducted properly. Apple supports customers' choice to use a third-party part, but transparency is crucial. It is particularly important for secondary owners, who purchase a used, potentially repaired device or receive one as a hand-me-down. The bill would upend Apple's sophisticated authentication methods that notify a consumer of non-genuine parts, parts previously used, or parts installed from another device. As a result, consumers could be more easily deceived. They may receive a counterfeit or a third-party part even though they believe they purchased a genuine part. Consumer protection would be undermined.

* * *

Apple supports the goal of growing repair networks for consumer electronic products, which is why Apple has expanded its repair networks and nearly doubled the number of its service locations to over 8,000 over the past three years. Through these programs, any US-based repair provider or owner can obtain access to genuine Apple parts, tools and instructions. Consumers have several repair options, such as going to Apple directly or getting repairs via Apple's Authorized Apple Service Providers or Independent Repair Providers. Through these programs, technicians source genuine parts and tools, giving consumers third-party repair options that are reliable and safe. Moreover, consumers with experience can now repair their own devices with the same genuine Apple parts, tools, and repair manuals through Apple's recently introduced Self-Service Repair Store.

SB 4104A would impede the progress made by Apple and other manufacturers to expand repair networks by making it more difficult for manufacturers to provide consumers with security, privacy, safety, and transparency through their repair programs.

SB 4014A Violates Numerous Constitutional Provisions, Ensuring Costly Legal Challenges if the Bill Passes in Its Current Form.

First, SB 401A would regulate Apple's relationship with consumers outside of New York because it extends its requirements to all devices "sold or used" in New York regardless of whether they were originally purchased in or stay within the state. Because the bill would "directly control commerce occurring wholly outside the boundaries of a State," it thus "exceeds the inherent limits of the enacting State's authority." *Healy v. Beer Inst.*, 491 U.S. 324, 336 (1989). Furthermore, the bill impermissibly burdens interstate commerce because it "has the practical effect of requiring out-of-state commerce to be conducted at the regulating state's direction." *Am. Booksellers Found. v. Dean*, 342 F.3d 96, 102 (2d Cir.2003). By reaching conduct in other states and burdening interstate

commerce, the bill violates the Commerce Clause of the United States Constitution.

SB 4014A would also require Apple and other manufacturers to provide access to their tangibles and intellectual property, including, for example, copyrighted diagnostic software. The bill requires Apple to provide repairers and consumers alike with all “software program[s], hardware implement[s],” and “other apparatus[es] used for diagnosis, maintenance, or repair” of its products without Apple’s consent. These requirements violate the Takings Clause and may well be preempted by federal law, including the Copyright Act.

SB 4104A Does Not Address Environmental Concerns, Including E-Waste Management in New York.

SB 4014A does not impose any requirements on e-waste management for those conducting repairs and thus fails to advance New York’s environmental goals. Apple leads the industry in environmental initiatives on climate change, conserving finite resources, and smarter chemistry. We strive to make it easier for our customers to recycle our products. In the state of New York, as well as 99 percent of the countries where we sell products, we provide and participate in recycling collection programs to ensure that e-waste is responsibly recycled. We also provide all Apple Authorized Service Providers, Independent Repair Providers, and customers using Self Service Repair with free recycling services.

SB 4104A is Poorly Drafted and Overbroad, Complicating Compliance Efforts.

The bill as drafted would make compliance near-impossible in some circumstances.

- The bill’s requirement to facilitate repairs without the internet is unworkable. In addition to the security and privacy concerns discussed above, a bill disallowing manufacturers from using the internet as a part of the repair process is impractical in the modern world. Manufacturers, including Apple, use the internet to distribute diagnostic software and authenticate repairs of smartphones—devices whose primary functionality depends on internet connectivity. The bill would prohibit this common-sense practice, upending current repair networks and adding friction and delays to the customer experience.
- The bill would apply retroactively to legacy products: SB 4104A would require a manufacturer to provide parts, tools, documentation and the above explained critical authentication for *any* products it has released on the market. In order to comply with SB4101A, manufacturers would be need to retroactively alter the design of products already in customers hands and in some cases, even for discontinued products. Manufacturers

discontinue older versions of their products due to consumer-focused technological updates and demand. However, discontinued products are still used or sold in New York and around the country. It is practically impossible for manufacturers to alter the design of products already in customer hands or for products no longer on the market.

S4104



Expanding Access to Service and Repairs for Apple Devices

April 2022

At Apple, we aim to create the best experience for our customers. We also believe the best technology is technology that lasts, which is why we design our products to be durable so that they rarely require maintenance or repair.

The result is products that are better for people and the planet. Creating durable products minimizes the need for repair and helps us get the most out of the finite resources used to make every product. We're continuing to find innovative ways to use more recycled materials across our products, a key part of our goal to end our reliance on carbon-intensive mining.

Creating long-lasting products requires an approach that combines hardware designed to endure the rigors of everyday use, ongoing software updates that unlock new features and functionality, and — when needed — high quality repair services. Apple employees, from engineers to product designers, work together to deliver products that meet this vision, for example introducing water resistance, drop performance, security, privacy, and repairability. The challenge is to design for both durability and ease of repair, since the technologies that increase durability, such as the use of adhesives to achieve water resistance, can make repair more challenging. We believe our products strike the right balance. And we have seen that they hold their value better and are used longer than comparable devices.^{1,2,3,4,5}

If a repair is needed, we believe we have a responsibility to customers and the environment to offer convenient access to safe, reliable, and secure repairs to help customers get the most out of their devices. That's why we now offer more repair options to help our customers get their devices back up and running as soon as possible. We've nearly doubled the size of our industry-leading service and repair network over the last few years by adding more Apple Authorized Service Providers and launching the Independent Repair Provider program.

Repairing modern electronic devices is usually best handled by a trained professional repair technician, such as those in our repair network. But we know some of our users have experience with the complexities of repairing electronic devices. With that in mind, Apple took a major step forward in April 2022 with the launch of Self Service Repair, providing customers access to genuine Apple parts, tools, and repair manuals.

We're constantly innovating to make our products more durable and useful — finding every opportunity to learn from our experience, consumer feedback, and our service network to improve our products. And we're committed to doing the right thing for our customers and the environment by delivering long-lasting products.

Our commitment to the environment

We are at a pivotal moment in addressing climate change, one of the greatest threats of our time. At Apple, we see an opportunity to help drive change and uncover innovations that make our products even better for the planet. We aim to build durable, long-lasting products that make the best use of the finite resources inside them.

As part of our circular economy strategy, we're moving toward a future where we can implement low-carbon designs, create recycling technologies that help end our reliance on carbon-intensive mining, build products using only recycled and renewable materials, and invest in expanding our repair network. Apple's worldwide operations are already carbon neutral, and we're committed to extending that progress to our entire carbon footprint by 2030 — including our supply chain and the electricity used by the products we make. In fiscal year 2021, nearly 20% of the materials we shipped in our products came from recycled sources, and we doubled our use of recycled tungsten, rare earth elements, and cobalt.

To learn more about Apple's commitment to the environment, please view Apple's 2022 Environmental Progress Report.

Apple's approach to service and repairs

Preserving users' security and privacy

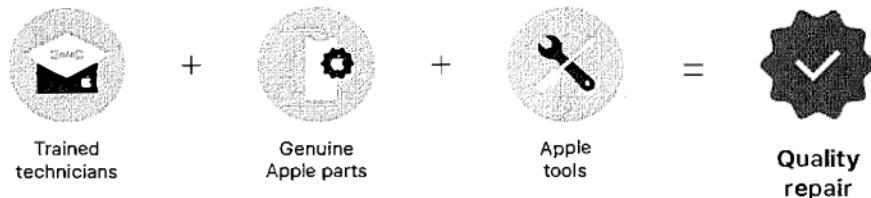
We're committed to protecting users' security and privacy during the service and repair process.

Apple has established strict security procedures to safeguard user information when repairs involve the Face ID and Touch ID modules. These modules rely on highly sensitive biometric data, and often safeguard personal data, such as financial and medical information.

We give technicians in our network access to our cloud-based diagnostic system, allowing them to use remote software tools to diagnose potential issues using only the device's serial number. As a result, technicians don't need to obtain customers' device passwords to complete most repairs, and user data is kept private.

We believe customers should have access to safe and reliable service and repairs that do not compromise their security, their privacy, or the functionality of their device. We also know that a repair is more likely to be done correctly when it's performed by skilled, trained professionals, using genuine Apple parts engineered for quality and safety, and tools designed for the repair.

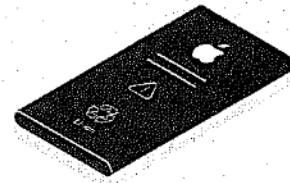
Trained Technicians: Every technician in our service and repair network goes through more than a dozen hours of training and certification courses, ensuring they have the expertise to repair products correctly. Our training teaches them to diagnose issues and perform repair processes that have been rigorously engineered and tested to meet our safety and quality standards. When a new product is introduced, technicians are required to take additional training and certification courses before they can perform repairs on the new device.



Genuine Apple parts: Apple and Apple Authorized Service Providers use only genuine Apple parts in a repair. Every Apple part is designed to meet the same high safety and quality standards as parts used in new products. We require repair technicians at Apple and Apple Authorized Service Providers to use genuine parts designed to get a customer's product back working exactly the way it should. These same Apple parts were also made available to Independent Repair Providers beginning in 2019 and are now available to anyone through Self Service Repair. Every repair performed by Apple and Apple Authorized Service Providers is backed by an Apple repair warranty.

Safely replacing iPhone batteries

iPhone contains industry-leading soft-pack lithium-ion batteries, giving iPhone longer battery life.⁶ These batteries should be handled and replaced with care because in some instances, non-genuine parts and tools or poor workmanship during a repair have led to Apple devices being damaged or becoming unsafe.



Technicians in Apple's service and repair network are trained to perform battery replacements safely. They use tools custom-engineered to perform the repair, use only genuine Apple parts, and take care to avoid mishandling components. With Self Service Repair, Apple provides customers access to the same genuine parts and tools, along with repair manuals to guide them on how to safely perform the replacement.

Apple tools: Apple tools are specified and engineered to provide the most reliable repairs for Apple products, when used as described in Apple's repair manuals. In fact, we've designed them for professional repair technicians who rely on these tools for high volume repairs across multiple product models. Apple tools are engineered, tested, and verified to provide the same performance, functionality, and safety as the factory tools used to build Apple products. These repair tools are designed with precision in mind, so technicians can, for example, apply the right pressure to reseal a display, apply the exact torque on a screw, or use targeted heat to soften an adhesive, enabling repairs that won't damage the device.

These professional-grade tools are available to all providers in our service and repair network. And now, with Self Service Repair, they are also available for purchase, or in rental kits, to customers who are capable of performing their own repairs.

Expanding access to service and repairs

Over the past three years, we have nearly doubled the number of service locations to over 8,000, offering more ways for consumers to access repairs. Our repair network helps to extend the life of products and helps the planet by getting the most out of the finite resources used to create them. Apple's service and repair network is comprised of:

The IRP Program



Any independent repair shop, including small businesses or mobile kiosks, can apply to join the IRP program for free.

IRPs receive access to training, repair manuals, and software tools.

IRPs can access genuine Apple parts and tools at the same prices as Apple.

While Apple always recommends the use of genuine Apple parts, IRPs may choose to also offer third-party alternatives.

Apple has simplified the conditions and requirements to sign up for the program. To learn more, visit <https://support.apple.com/irp-program>.

- Apple Stores and mail-in repairs.** Customers can visit more than 500 Apple Stores worldwide for service and repairs. We also offer customers the option of mailing their devices directly to Apple.
- Apple Authorized Service Providers (AASPs).** AASPs are independent companies authorized by Apple to perform in- and out-of-warranty repairs, using genuine Apple parts and tools, Apple training, service guides, and software tools to perform service and repairs. Any repair done by an AASP is backed by an Apple repair warranty. There are currently more than 5,000 Apple Authorized Service Providers worldwide, supporting more than 100,000 active technicians, that provide the same services and repairs that Apple Stores offer. As a result, in the US, eight out of ten Apple customers are located within 20 minutes of an AASP. In many cases, AASPs also offer service at a customer's home or office.
- Independent Repair Providers (IRPs).** Customers also have the option to repair their devices at more than 3,000 IRPs in more than 170 countries. The IRP program gives independent repair shops access to the same parts, tools, training, and resources as Apple Stores and AASPs. While we always recommend the use of genuine Apple parts, IRPs may offer genuine parts or third-party alternatives to provide customers more choice. The IRP Program continues to expand:



Self Service Repair

For the vast majority of customers, the safest and most reliable repair is achieved through an Apple Store or one of the thousands of Apple Authorized Service Providers and Independent Repair Providers around the world. Repairing modern electronic devices that are complex, highly integrated, and miniaturized isn't easy — and these technicians have the expertise, training, parts, and tools to get the repair done right. For customers with experience in the complexities of repairing electronic devices, we created the Self Service Repair program — which provides access to repair manuals and the same genuine Apple parts and tools used by Apple's service and repair network, at the same cost.

In its initial phase, the Self Service Repair program is offering access to more than 200 individual parts and tools, allowing customers to perform the most common repairs on iPhone 12 and later models, soon to be followed by Mac computers with Apple silicon. This program launched in April 2022 in the US and will expand to Europe later in 2022.

We give customers a credit back from their purchase if they return certain used parts for recycling following a repair. Apple's policy of offering AASPs, IRPs and Self Service Repair customers a credit for the return of used parts enables us to refurbish parts to our high quality and performance standards, or recover resources through recycling.

Service and Repair Options for Apple Devices

The table below shows the different service and repair options for Apple devices.

	Apple Stores and Mail-in Apple Repair Centers	Apple Authorized Service Providers (AASPs)	Independent Repair Providers (IRPs)	Self-Service Repair (SSR)
Number of locations worldwide	500+ retail locations Many products can also be mailed to Apple	5,000+ Select locations: At-home service and repairs (see above)	3,000+	
Training and documentation	Technicians trained and certified by Apple	Technicians trained and certified by Apple	Technicians trained and certified by Apple	Repair manuals provided by Apple
Parts and tools	Only genuine Apple parts and tools are used	Only genuine Apple parts and tools are used	Genuine Apple parts and tools are made available at the same cost as AASPs. IRPs may use 3rd party parts and tools	Offers genuine Apple parts and tools for the most commonly serviced modules, at the same cost as AASPs

Apple's journey to improve device longevity

We believe that the best technology is technology that lasts, which is why we design our products to be durable enough to rarely require maintenance or repair. While the durability of our technology minimizes the need for repair, service and repair still play an important role in helping our users get the most out of their devices. We customize our approach for each product, based on how we expect our customers to use them. And the goal remains consistent across all products: to keep them in use as long as possible.

Durability is a top priority. For example, to improve iPhone durability over the years we introduced water- and dust-resistance and, recently, the industry-first Ceramic Shield front cover. In fact, research has shown iPhone to be the most durable smartphone tested.⁷

We've also improved repairability. iPhone 13 has more modules that can be repaired than previous iPhone models, including the battery, display, and speakers, making it the most repairable iPhone ever. In 2022, we introduced a new repair for the TrueDepth Camera on recent iPhone models. The newest generation of MacBook Pro notebooks feature batteries that are easier to access and repair.

iPhone longevity journey

- ✓ Features to enhance durability
- Repairable at retail stores, plus Authorized Service Providers, and central repair locations

iPhone (1st generation)	iPhone 4	iPhone 7	iPhone X	iPhone 13
<ul style="list-style-type: none"> ● SIM tray 	<ul style="list-style-type: none"> ● SIM tray ● Battery ● Haptics ● Rear camera 	<ul style="list-style-type: none"> ● SIM tray ● Battery ● Haptics ● Rear camera ● Main logic board ● Display <ul style="list-style-type: none"> ✓ Splash, water, and dust resistant: IP67* ✓ Sapphire crystal lens cover 	<ul style="list-style-type: none"> ● SIM tray ● Battery ● Haptics ● Rear camera ● Main logic board ● Display ● Bottom speaker ● Enclosure ● TrueDepth camera <ul style="list-style-type: none"> ✓ Splash, water, and dust resistant: IP67* ✓ Sapphire crystal lens cover ✓ Surgical-grade stainless steel 	<ul style="list-style-type: none"> ● SIM tray ● Battery ● Haptics ● Rear camera ● Main logic board ● Display ● Bottom speaker ● Top speaker ● Enclosure ● TrueDepth camera <ul style="list-style-type: none"> ✓ Splash, water, and dust resistant: IP68* ✓ Sapphire crystal lens cover ✓ Surgical-grade stainless steel ✓ Ceramic Shield
2007	2010	2016	2018	2021

* iPhone 7, iPhone X, and iPhone 13 models are splash, water, and dust resistant and were tested under controlled laboratory conditions. iPhone 7 and iPhone X have a rating of IP67 under IEC standard 60529 (maximum depth of 1 meter up to 30 minutes). iPhone 13 has a rating of IP68 under IEC standard 60529 (maximum depth of 6 meters up to 30 minutes). Splash, water, and dust resistance are not permanent and limitations apply. Always use proper care and handling. Do not attempt to charge a wet iPhone; refer to the user guide for cleaning and drying instructions. Liquid damage not covered under warranty.

By building durable hardware, providing ongoing software updates and convenient access to repair, consumers can use our devices longer. For example, MacBook Pro lasts an average of 2-4 years longer than traditional PCs.¹ Apple products tend to have higher resale values, and are passed on to new users more often.^{2,3,4} For example, iPhone 12 and iPhone 13 retain more of their value than any other smartphone model released in the same year.⁵ By designing products to last, we are doing the right thing for our customers, and we are doing the right thing for the planet by getting the most out of the finite resources we use to build them.

Increased hardware and software support

In addition to increasing the durability and repairability of devices:

- We provide service and parts for products long after they were last distributed. For example, nearly all Apple products can be serviced or repaired for at least seven years after they're last sold.
- Apple offers MacBook Pro and MacBook Air batteries for up to ten years from when the product was last distributed for sale.
- iPhone benefits from software support that generally lasts years longer than other smartphones.^{6,7} For example, iOS 15, our most recent release, extends support back to iPhone 6s (2015).
- macOS Monterey, the current major release of macOS, supports notebooks released since 2015.

Frequently Asked Questions

How can customers — including those in rural areas who are not near an Apple Store — get their devices serviced or repaired?

There are many ways that customers can access Apple's service and repair network, even from rural areas. We have worked to expand the network of service providers so customers can have convenient access to repairs not only at Apple Stores, but also at Apple Authorized Service Providers and Independent Repair Providers. For example, in the US, eight out of ten Apple customers are within 20 minutes of an AASP. Visit <https://getsupport.apple.com/> or download the Apple Support app from the App Store to find an Apple Authorized Service Provider. If customers can't access any of these providers, they can also contact Apple Support to use the mail-in option, which is available for most Apple products. Customers who are interested in repairing their own devices can also choose Self Service Repair.

Why does Apple use adhesives in products?

Adhesives are essential for modern electronic devices. They're strong and lightweight, and help make devices water-resistant by sealing internal components against liquids and spills. Devices that use adhesives are also more material efficient and enable technologies such as Super Retina XDR displays. In addition, some adhesives are reversible, allowing devices to be serviced and repaired. For example, iPhone batteries are adhered in place using stretch-release adhesives, which can be removed by pulling a tab.

Why are third-party repairs sometimes less expensive than repairs through Apple's network?

Apple believes that the safest and most reliable repairs are those handled by a trained technician using genuine Apple parts, tools, processes, and diagnostics. Genuine Apple parts and tools are properly engineered, rigorously tested, and tailored for each product, to ensure the highest quality, integrity, safety, and environmental performance.

Non-genuine parts or tools used in repairs may cost less, but we can't stand behind their safety or reliability.

Why are Apple's tools more expensive than other third-party tools?

Our tools are engineered for professional repair providers, to deliver the same performance as factory tools used to build Apple products. They're also designed to be shared across multiple product models. For example, by using interchangeable product-specific repair trays, the Display Press and Battery Press are compatible with all iPhone devices released in the last 7 years.

Why isn't Apple releasing schematics for use in board-level repairs?

Industry and repair experts agree that the vast majority of board-level repairs are best performed in a factory environment using specialized equipment capable of producing high quality, reliable, and repeatable results to meet original equipment manufacturer (OEM) standards.^{9,10} Boards are packed with many small components necessary for the device's proper functioning. For example, ball grid array (BGA) parts require specialized equipment for their repair that is restricted to factory or advanced repair environments due to its cost and complexity.^{10,11} Therefore, board-level repairs, particularly those involving soldered components, are best performed by certified technicians who use controlled processes, calibrated factory equipment, and rigorous testing.

Why does Apple require use of System Configuration to complete a repair?

System Configuration is a post repair software tool that completes the repair for genuine Apple parts and ensures a genuine Apple part — designed, tested, and manufactured for Apple quality and performance standards — was installed. Running System Configuration has a number of purposes that vary based on the part replaced. For example, displays, cameras, battery, and ambient light sensors have calibration values that are customized to each individual part during manufacturing. Transferring these values ensures maximum performance and quality after a repair.

How is a customer's product warranty impacted by a Self Service Repair?

The customer's product warranty is not impacted by a Self Service Repair, however any issue or damage caused by the customer over the course of the repair would not be covered by Apple.

Sources

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