EXHIBIT 7
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The Next Level in Engineering

Joshua Glasscock v. SIG Sauer, Inc.
Expert Report – Design, Manufacturing and Functionality Expert Report
Prepared by: Derek Watkins
Date: 03/31/2025

Figure 1.1: Subject SIG Sauer P320, 9mm (SN: 58A146892)

1. Introduction & Background

This report is with respect to the matter of Joshua Glasscock v SIG Sauer, Inc. The Plaintiff, Mr. Glasscock, claims the SIG Sauer P320 pistol is "more susceptible than its counterparts to inadvertent discharges, i.e., discharges where the there is no trigger pull".[1] The Plaintiff now claims in its motion for class certification that the P320 is defective because "(1) the P320 is effectively fully energized and ready to fire the instant that a round is chambered;

[1] Complaint, Joshua Glasscock vs. SIG Sauer, Inc. ¶ 26.

(2) the P320 has a minimal trigger pull because it is short and lightweight; and (3) the P320 lacks any external safety features," and these "three components that when combined, create an unreasonably dangerous product for its reasonably anticipated use" [2]. The Plaintiff has never experienced an inadvertent discharge with the subject SIG Sauer P320 pistol[3].

To further complicate matters, there also appears to be a discrepancy between how the Plaintiff's Complaint and Plaintiff's deposition testimony and the Plaintiff's consultants define an inadvertent discharge. Plaintiff's Complaint alleges "the P320 [as] being more susceptible than its counterparts to inadvertent discharges, i.e., discharges where the there is no trigger pull" [4]. Plaintiff also testified at his first deposition that the P320 was a "dangerous weapon" because of the "issues" of it "going off without the trigger being pulled"[5]. Conversely, Mr. Gatrost, consultant for the plaintiff, states that "the P320 is unreasonably susceptible to firing without the trigger being intentionally pulled," which acknowledges that inadvertent discharges involve activation of the trigger[6].

2. Summary of Findings

I performed an examination of the subject SIG Sauer P320 pistol on November 26, 2024. During the examination the subject pistol was physically tested in a non-destructive manner that conformed with the reasonable and foreseeable use of the firearm. The examination revealed the pistol was fully functional. Despite being subjected to the full battery of function testing, the pistol was never made to discharge absent a trigger pull. No physical or empirical evidence was observed in the examination that suggested the subject pistol was capable of discharging absent a trigger pull or was more susceptible to an inadvertent discharge than its Glock, Walther, Smith & Wesson or FN counterparts.

[2] Motion for Class Certification. ¶ 24
[3] Deposition of Mr. Glasscock, dated March 6, 2025 at page 88.
[4] Complaint, Joshua Glasscock vs. SIG Sauer, Inc. ¶ 26.
[5] Deposition of Mr. Glasscock, dated May 16, 2023 at pages 69-70.
[6] Declaration of Benjamin D. Gatrost in Support of Plaintiff's Motion for Class Certification. ¶ 63.

Function Testing	Pass	Fail
Magazine Catch	✓	
Slide Catch	✓	
Magazine Release	✓	
Slide Release	✓	
Trigger Function	✓	
Disconnector Function	✓	
Firing Pin/Striker Function	✓	
Striker Block Function	✓	
Slide Gap (Exercised a minimum of 100 times)	✓	
Striker Block Function (dynamic)	✓	
Slide to FCU Twist/Sever Angle Test	✓	
Safety Lever Return Function	✓	
Trigger Pull Actuation Force Testing	✓	

Figure 2.1: Summary of the Function Tests Performed on the Subject SIG Sauer P320 Pistol.

All physical testing of the subject pistol failed to produce a discharge absent a trigger pull. See Figure 2.1. The pistol could be made to fire only after it was cocked, and the trigger was pulled. The subject pistol is equipped with multiple passive safeties, in the form of a dynamically balanced trigger and trigger bar system (trigger system safety), a striker lock/block system, and a secondary sear engagement surface. The fire control unit of a SIG P320 uses a pull-based trigger bar, which means the trigger and trigger bar move in opposite directions. SIG Sauer used this motion in opposite directions to nullify movement of the trigger in abuse conditions such as the pistol being dropped. The striker lock system physically locks the striker and prevents the pistol from discharging if the trigger is not actuated. The secondary/backup sear notch is designed to catch the striker in the unlikely event the primary sear fails due to part breakage or an extreme impact. Therefore, a discharge of the subject pistol without a trigger actuation would require a triple failure of the pistol's mechanical systems: the primary sear would have to fail and release the cocked striker, the secondary sear notch would have to fail to engage the released striker, and the striker lock would have to fail to block the forward motion of the striker and allow the striker to detonate the chambered cartridge of ammunition.

There is no physical evidence to support an allegation that the 320 pistol can fire at any time or in any manner other than when the pistol's chamber is loaded, the striker pin is cocked, and the trigger is fully actuated. It is my demonstrable opinion that the physical

condition of the subject P320 pistol, memorialized in the physical testing, and photographs, dictates the will only discharge due to a trigger actuation when exercised in a reasonably foreseeable manner.

Based on my education, training, and experience in product design and firearm design, manufacture and function, my review and study of the information provided regarding the circumstances of the shooting, and my inspection and testing of the subject pistol and exemplar pistols, I offer the following opinions to a reasonable degree of engineering and scientific certainty:

1. Whether considered separately or together, the SIG Sauer P320 pistol platforms' trigger performance characteristics, fully energized nature after a round of ammunition is chambered, and its owner configurable lack of an external manual thumb safety do not constitute a design defect;

2. The SIG Sauer P320 is safe in design and manufacture for its intended and reasonably foreseeable uses, as the SIG Sauer P320 pistol platform meets and/or exceeds all SAAMI and NIJ performance standards;

3. The trigger of the SIG Sauer P320 pistol platform is an integral part of the P320's inertially balanced trigger system safety, therefore, the SIG Sauer P320 pistol platform is equipped with an external safety;

4. If passive tabbed trigger safeties, such as those employed by Glock, Walther, Smith & Wesson, and FN are considered "external" safeties, the passive dynamically balanced trigger system safety of the SIG Sauer P320 must also be considered an "external safety";

5. The P320 passes all applicable industry (SAAMI) and law enforcement (NIJ) abuse standards without a manual safety or a trigger safety (bladed/tabbed trigger safety);

6. The SIG Sauer P320 pistol platform does not contain a "light" trigger pull, as claimed by the plaintiff and the trigger pull weight of the SIG Sauer P320 pistol platform is within industry performance standards (SAAMI & NIJ);

7. The trigger pull weight of the SIG Sauer P320 pistol platform is comparable to its Glock, Smith & Wesson, Walther, H&K, Canik, Kahr Arms and SCCY competitors (which have trigger pull weights between 4 & 7 pounds);

8. The SIG Sauer P320 pistol platform does not have a defectively short trigger pull;

9. Semiauto single action pistols, such as the M1911, have significantly shorter trigger displacements than the SIG Sauer P320 pistol platform and have been in mass production since the early 1900s;

10. The trigger pull characteristics of a SIG Sauer P320 pistol are not an "outlier", as shown in the competitor trigger performance data analysis;

11. Glock, Smith & Wesson, Walther, H&K, Canik, and SCCY all manufacture single action (fully energized) competitors to the single action SIG Sauer P320 pistol platform;

12. The fully energized nature of the SIG Sauer P320 pistol platform's striker after a round of ammunition has been chambers is equivalent to its Glock, Smith & Wesson, Walther, H&K, Canik, Kahr Arms and SCCY competitors;

13. The fully energized nature of the SIG Sauer P320 pistol platform's striker after a round of ammunition has been chambers is not a design defect;

14. It has been my experience that pistol manufacturers do not directly advertise the "energized" nature of their pistol's striker system;

15. Due to the confusion with properly identifying striker fired pistols as single, double and mixed mode action types, NIJ has adopted the practice of identifying striker fired pistols as a "striker action" and nothing more;

16. The firearms industry is currently adopting the NIJ practice of identifying the action type of striker fired pistols as a "striker action";

17. Inadvertent and negligent discharges can occur with all pistol platforms;

18. The presence of an external thumb safety will not prevent all inadvertent discharges and can increase the probability of a "failed to discharge" hazard;

19. No evidence exists that the P320 platform is more prone to inadvertent discharge than its competitor pistols;

20. SIG Sauer P320 pistol owners and users often have different uses for pistols and a need for the option to configure them with and without manual thumb safeties;

21. SIG Sauer P320 pistols not equipped with a manual thumb safety are intended for shooters or entities who do not want a manual safety on their pistol(s) and/or will not employ or instruct its subordinates to employ a manual thumb safety if it is present. Plaintiff himself falls into this category concerning his Glock 19, which does not have a manual thumb safety and which his employer instructs him to carry loaded;

22. Bladed/tabbed trigger safeties and striker block safeties are passive and not manual safeties;

23. Pistols employing push-based trigger bar fire controls typically require a bladed/tabbed based passive trigger safety to pass industry standard drop and impact abuse testing;

24. Pistols employing pull-based trigger bar fire controls, such as the SIG Sauer P320 pistol platform, can pass industry standard drop and impact abuse testing by inertially balancing their trigger and trigger bar system and therefore, do not require a tabbed trigger to prevent drop fires;

25. Mr. Glasscock's subject SIG P320 is and was equipped with a functioning passive dynamically balanced trigger system safety and a passive striker lock/block safety;

26. Mr. Glasscock's subject P320 pistol will not discharge after being loaded and cocked without an external stimulus inducing motion of the trigger, i.e. the pistol will not discharge in the absence of a pulling, depression or motion of the trigger;

27. There is no physical evidence to support an allegation that Mr. Glasscock's subject SIG P320 pistol can fire at any time or in any manner other than when the pistol's chamber is loaded, the striker pin is cocked, and the trigger is fully actuated; and

28. The physical condition of the subject P320 pistol, memorialized in the physical testing, and photographs, dictates the will only discharge due to a trigger actuation when exercised in a reasonably foreseeable manner.

3. Qualifications

My analyses and opinions adhere to the scientific method and are based upon my experience, education, and training in the fields of mechanism design, firearm design and manufacture, ammunition design and manufacture, interior ballistics, and exterior ballistics. My opinions expressed herein are based on what can be scientifically proven and what can be independently verified. I hold Bachelor of Science and Master of Science degrees in Mechanical Engineering. I have been professionally employed as an engineer for 29 years and hold 28 patents in the fields of mechanical design, system design, thermodynamics, heat transfer, controls logic, safety enhancement and reliability enhancement. A full copy of my CV is attached as Exhibit A. I began my professional design experience in firearms and ammunition in 1995, when I was hired by Remington Arms as a design engineer in their Research and Design center. While employed with Remington, I received advanced training in finite element analysis (Ansys), dynamic and kinematic analysis (Working Model and MCS ADAMS) and computer aided design (CADS 5 & Pro Engineer). My focus at Remington was on fire control designs for bolt action rifles, but I also gained experience in the design of many different platforms, as young engineers would often work on multiple platforms at the same time. I received my first patent at Remington for the development of a new gas piston system used in the 1100 and 1187 shotguns. In my last year with Remington, I was given the opportunity to design an entirely new rifle platform. After three years of firearm component, subsystem and system design with Remington, I then moved to General Electric (GE).

I began working for GE (appliances division) in late 1998 and was there for eleven years, working my way up from design engineer to systems engineer, to design manager, and then senior design engineer. As a design engineer at GE, I designed and put into production individual components and small assemblies. My systems engineer responsibilities graduated me to full product design. I was promoted to design manager to lead a team of eight engineers in putting into production a new $16,000,000 model line of washers and dryers that I had designed. When I was promoted to senior design engineer, I was assigned to the innovations group where I designed completely new products from the ground up and also served on “tiger teams” for programs of different GE companies around the US.

When programs become late, over budget or the design is not working, "tiger teams" are assigned to rectify the issues. While at GE I received advanced training in computer aided design (SolidWorks); advanced certificates in dynamic analysis and design simulation (DADS) and statistical simulation and analysis (Six Sigma). During my tenure at GE, I earned 24 additional patents.

In 2009, I returned to Remington as an executive and managed engineers designing products, managed the intellectual property, provided litigation support, ran "tiger teams," and participated in the product reviews for all new products. During my second stent at Remington, I also received training in interior ballistics simulation (QuickLOAD) to support my field investigation efforts. In late 2013 Remington announced it was closing its R&D facility in Elizabethtown Kentucky and was moving it to Huntsville, Alabama. In early 2014 I made plans to leave Remington and start my own company. In April of 2014 my field investigation efforts proved a safety issue existed in a small percentage (less than 3%) of trigger mechanisms used in some of Remington's most popular firearms. The discovery led to the largest recall in Remington's history. I was asked to postpone my departure from Remington and oversee the analysis and implementation of the design and manufacturing fixes that addressed not only the recalled firearms, but also the large portion of the factory that had been shut down. To Remington's credit, during the six weeks of shut down, not a single person working the assembly lines was laid off. With the aid of many skilled men and women, the factory was first brought back online to implement the fix and service the recalled firearms. Once a significant portion of the recalled back log had been updated and returned to their owners, the factory restarted the production of new product.

In July of 2014, I finalized my plans to leave Remington and started Nth-Level, where I provide product liability support and engineering contract services for the entire firearms industry. For the full years of 2018 and 2019, I was part owner of the Atlas Development Group. Atlas was founded by several of the Department of Defense engineers at Remington that also left Remington's R&D facility shortly after I exited. Atlas provides engineering services for the firearms industry, and also manufactures precision brass cartridge casings (shells) as an OEM supplier and services the competition and shooting enthusiast market. Multiple world titles have been won with Atlas Development Group's

cartridge casings. During this time Nth-Level was a wholly owned subsidiary of Atlas Development Group.

In 2020 I dissolved my ownership of Atlas Development Group and took back the full ownership of Nth-Level. In 2022 I split the engineering services function into its own company, Next Level Designs, LLC. Next Level Designs focuses on new product and subsystem design engineering. Three fire control/trigger mechanism patents have been issued under Next Level Designs, bringing the total number of patents in which I am an inventor to 28. See my CV, as referenced above.

Utilizing my education and extensive firearms industry experience, my opinions are stated to a reasonable degree of engineering and scientific certainty.

4.) Brief Overview of the SIG Sauer P320

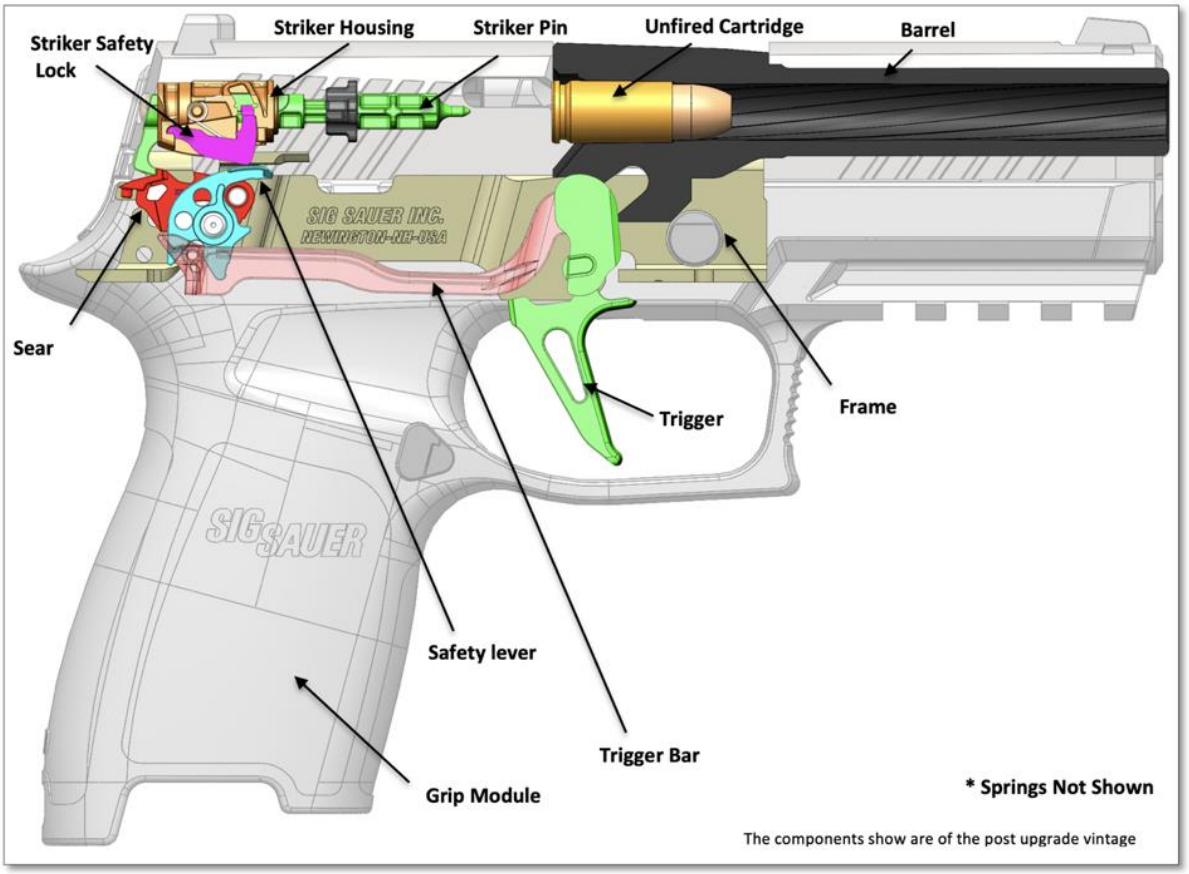


Figure 4.1: Select Components of the SIG Sauer P320

The SIG Sauer P320 is a semi-automatic striker fired pistol manufactured by SIG Sauer, Inc. The P320 was first introduced to the US market in 2014 and is an evolution of the hammer fired SIG Sauer P250 platform[7]. The uniqueness of the P320 is that it is a striker fired pistol that employs a short displacement trigger system housed in a configurable modular fire control unit (FCU), which facilitates superior performance characteristics previously considered unattainable in commercial firearms. Notably, the P320 meets and/or exceeds industry and customer specific performance abuse standards[8] without requiring the added complexity of a manual thumb safety or a tabbed trigger. See Figure 4.1. The use of a modular FCU allows a single fire control system to be used in generic grip modules, enabling the user to configure the pistol to their needs. From 2017 to 2022, SIG Sauer has

[7] Declaration of Matthew Taylor dated March 17, 2025 at ¶ 5 and ¶ 19.

[8] Firearms performance and abuse standards institutions: Sporting Arms and Ammunition Manufacturer's Institute (SAAMI), National Institute of Justice (NIJ), North Atlantic Treaty Organization (NATO) and the US Military Modular Handgun System solicitation (concluded 2017).

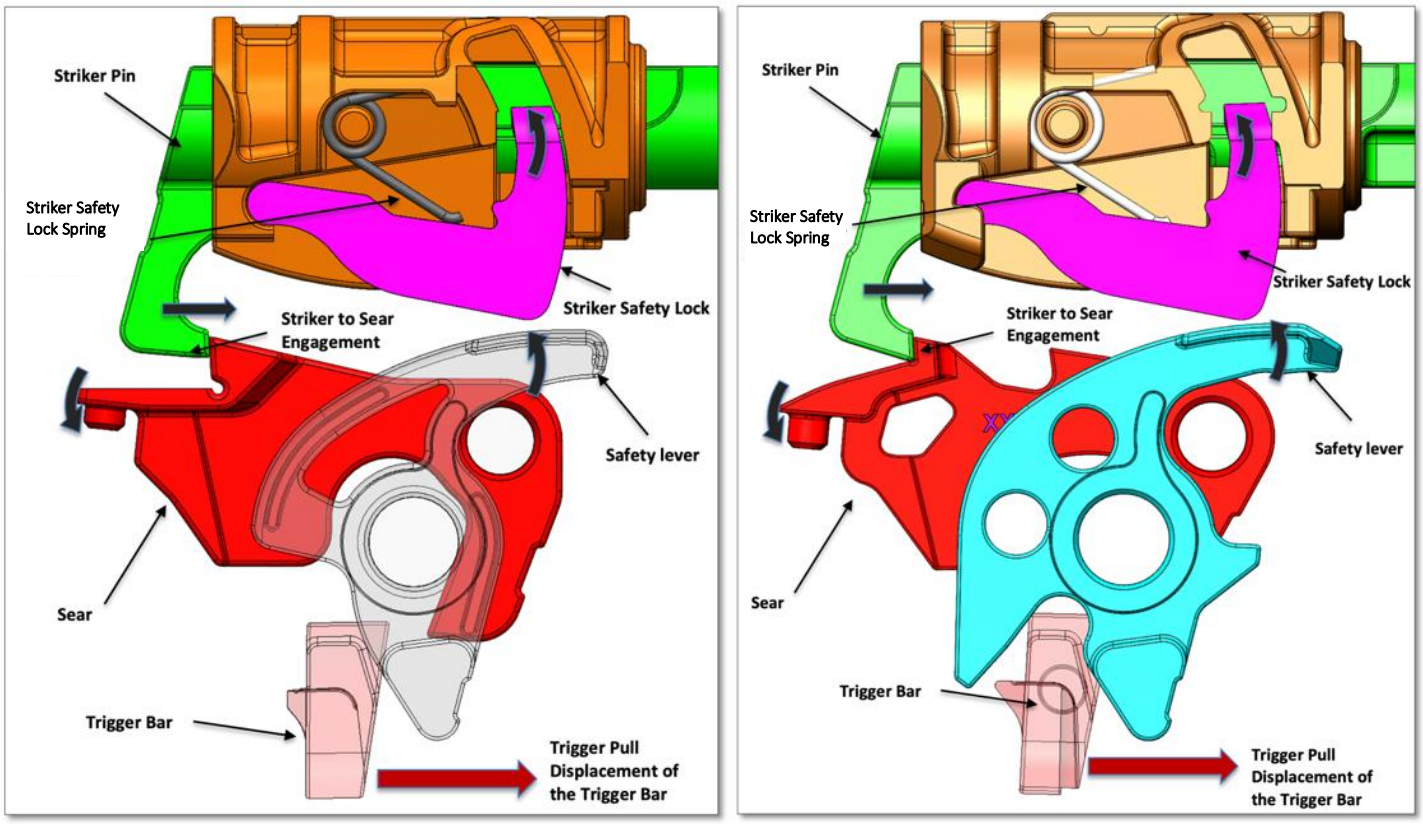
manufactured over 20 different models of the P320, including a customer configurable line in October 2021[9]. The modularity of the P320 is one of the features that led to a variant of the P320 winning the US Army's Modular Handgun System (MHS) solicitation for a new sidearm in 2017, making a version of the P320 the standard issued sidearm of the US Army in the form of the M17 (full size) and M18 (compact).

The enhanced configurable trigger system of the P320 is one of the features that distinguishes it from many other striker fired pistols on the market. Up to the 1980s, hammer fired pistols dominated the handgun market, with the most prolific model being the Colt M1911 and its clones. The hammer fired M1911 employs a short displacement trigger and was the US Army's standard issue sidearm from 1911 to 1985. The M1911 was also the side arm of choice designated by multiple law enforcement agencies across the United States. Due to the fundamental differences between hammer fired and striker fired pistols, it has only been in the past couple of decades that striker fired pistols with short displacement triggers have become readily available in the civilian firearms market. As a point of context, a commercially available WWII M1911 pistol clone (Remington R1) was measured to have a trigger displacement of approximately 0.070 inches, while the P320 has a trigger displacement of approximately 0.180 inches and a Glock has a trigger displacement of 0.290 inches. Through significant engineering effort and innovation, SIG Sauer was able to bridge the gap between the hammer fired and striker fired markets.

The US military's original solicitation required all pistols submitted for consideration to include an ambidextrous thumb safety, therefore, the SIG Sauer, Glock and Smith & Wesson pistols submitted for evaluation (among others) contained an ambidextrous thumb safety from the outset of the evaluation[10]. The variant of the P320 pistol platform SIG Sauer submitted for the MHS solicitation contained components from the 2014-2016 production fire control units, with the addition of a manual safety. The US Military tested and approved a pre 2017 voluntary upgrade version of the P320 pistol over the Glock and

[9] Declaration of Thomas Taylor dated February 17, 2025 at ¶ 9.
[10] Declaration of Ed Murphy dated February 10, 2025 at ¶ 7.

Smith & Wesson models. However, the P320 pistols SIG Sauer ultimately provided and still provides to the US Military were and are equipped with the upgraded parts contained in the voluntary upgrade program, which provide enhanced drop safety protection beyond the existing industry standards. Interestingly, SIG Sauer and Smith & Wesson offer variants of their MHS solicitation pistols equipped with manual thumb safeties to public and law enforcement consumers. Glock does not offer variants of its pistols equipped with manual thumb safeties to the public or law enforcement. The SIG Sauer P320 pistol variants equipped with a manual safety that were offered for sale to the public were available from September 1, 2017 through April 18, 2022 ("the Putative Class Period")[11].



Pre-2017 Upgrade Fire Control **2017 Upgraded Fire Control**

Figure 4.2: Component Displacement Due to a Trigger Pull (Pre-Upgrade)

[11] Declaration of Tom Taylor dated February 17, 2025 at ¶ 50 and ¶ 51.

The civilian and law enforcement P320 pistols went into production with the new enhanced fire control units slightly before or at the same time the M17 and M18 military pistols equipped with the new enhanced fire control units went into production.

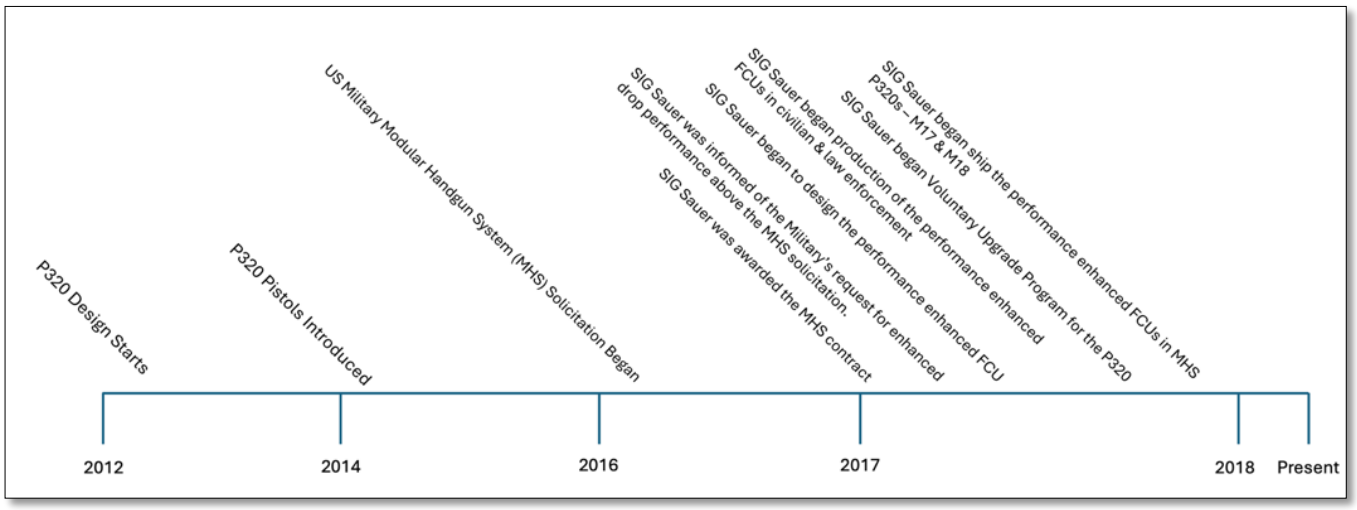


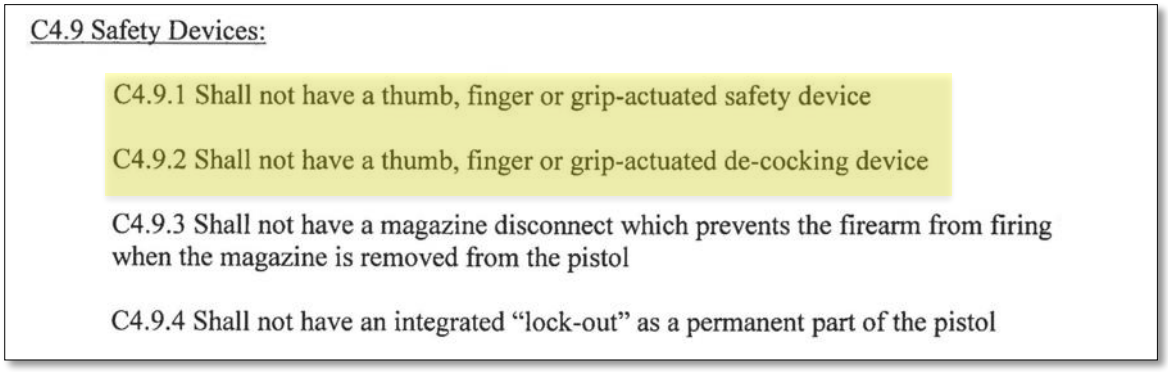
Figure 4.3: P320 Design Timeline[12].

The enhanced trigger, the configurable modular fire control unit and the user configurable grip modules, combined with the P320's excellent reliability and performance, have made the P320 the platform of choice among multiple branches of the military and numerous law enforcement agencies around the country, and the pistol of choice for many consumers. A civilian and law enforcement P320 upgrade program was initiated in 2017 to allow people to equip their previously purchased P320 pistols with the same upgraded parts used in the military's M17 and M18. See Figure 4.2. Additionally, the configurable foundation of the pistol allows consumers to tailor the P320 to meet their specific needs. For example, US Immigration and Customs Enforcement (ICE) issued a solicitation for a handgun that specifically ***prohibited*** the inclusion of a manual thumb safety, therefore, in contrast to the MHS solicitation, the P320 evaluation pistols submitted in response to the ICE solicitation were not equipped with manual thumb safeties[13]. See Figure 4.4. ICE has the philosophical view, previously advocated by others (such as Glock), that a manual

[12] Matt Taylor Declaration. dated March 17, 2025 at ¶ 5, ¶ 9 and ¶ 14; White, Andrew US Army moves ahead with handgun replacement programme, IHS Jane's 360 (May 31, 2016); Thomas Taylor Declaration. at ¶ 47, ¶ 50 and ¶ 51; James Lano Declaration. ¶ 4 and ¶ 7; Voluntary Upgrade of the P320 Pistol, Sig Sauer (Aug. 8, 2017), Voluntary Upgrade of P320 Pistol.

[13] DHS-ICE Solicitation, Solicitation Number: HSCEMS-16-R-00003. Part 1 – The Schedule. Section C, Description/Specifications/Statement of Work (SOW). Subsection C4, Duty Pistol Specific Requirements (Pass/Fail). Criteria C4.9 Safety Devices, Requirements C4.9.1 and C4.9.3. Page C8.

thumb safety requires the user to perform the additional act of manually disengaging the safety when deploying the pistol, which the operator could forget to do during periods of high stress. Therefore, ICE views manual thumb safeties as a potential safety hazard. The configurable modular fire control allowed the SIG P320 pistol to compete in and win the ICE solicitation[14].


C4.9 Safety Devices:

C4.9.1 Shall not have a thumb, finger or grip-actuated safety device

C4.9.2 Shall not have a thumb, finger or grip-actuated de-cocking device

C4.9.3 Shall not have a magazine disconnect which prevents the firearm from firing when the magazine is removed from the pistol

C4.9.4 Shall not have an integrated "lock-out" as a permanent part of the pistol

Figure 4.4: ICE Solicitation Prohibiting Manual Thumb Safeties.

In the ten-plus years the SIG Sauer P320 has been in production, it has risen to be a market leader, competing head-to-head with the Glock and Smith & Wesson M&P platforms.

5. Clarifying Firearm Safeties and their Function

A challenge that exists in the design of any product is to prevent harm from occurring during the reasonable, normal and expected use of the product. The Design Safety Hierarchy dictates it is best to eliminate risks in a product's design, rather than guard against the risk. In the world of firearm design, it is expected that a firearm will not discharge when dropped within reasonable limits. The reasonable limits are defined for designers within performance standards, such as SAAMI and NIJ. SIG Sauer chose to employ a balanced trigger system safety to minimize the inertial effects of a drop/impact on the pistol's fire control system and prevent unintentional discharges, rather than add a guard (in the form of a tabbed trigger safety) such as employed by Glock and Smith & Wesson. Additionally, by minimizing the effects of inertia on the trigger system, SIG Sauer

[14] DHS-ICE Solicitation, Solicitation Number: HSCEMS-16-R-00003.

made the addition of a manual thumb safety optional, rather than a requirement to pass industry standard abuse tests.

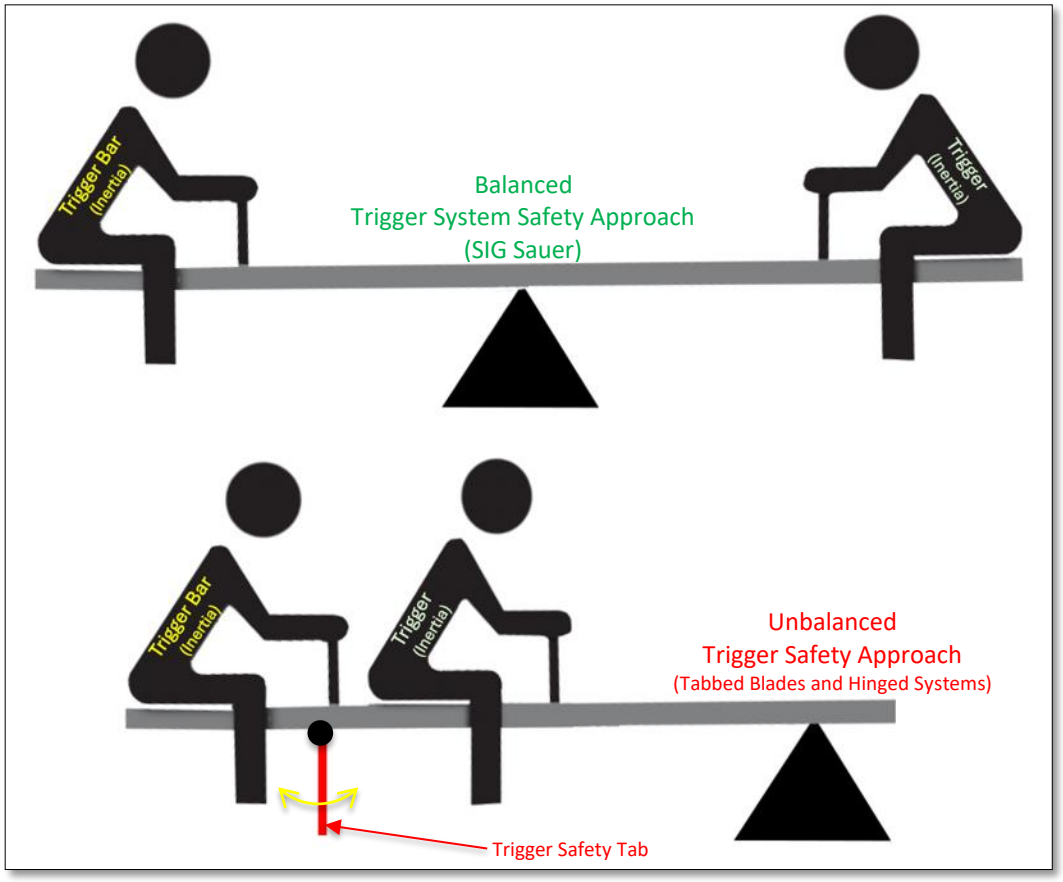


Figure 5.: Inertially Balanced vs. Unbalanced

A simple way to envision the differences between an inertially balanced trigger system safety and a trigger safety is with a teeter totter analogy. If the people represent the inertias of the trigger and trigger bar of a fire control, they can be placed on opposite ends of the teeter totter in such a way as the system will balance. If they are placed on the same end of the teeter totter a balanced condition cannot be attained, and a brace must be added to stabilize the system. See Figure 5. The brace acts like a trigger safety tab when in place, blocking motion, and allows motion when rotated out of the way. The balanced approach is less complex, more reliable and easier to operate.

5.1. Manual vs. Passive Safeties

The purpose of a firearm is to provide a focused manner in which to propel a projectile or group of projectiles in a direction at a commanded time. Since the 1000s[15], when the first firearms were invented, controlling when the firearm discharged was of paramount importance. In those initial designs, the firearms had two manual safeties: 1) don't load the firearm until you are ready to discharge the gun; and 2) don't light the fuse until you are ready to discharge the gun. The second manual safety instruction evolved into "don't cock the firearm until you are ready to discharge the gun", as fuses gave way to flint locks, which gave way to percussion caps, which then gave way to primed case ammunition[16].

Just as the method by which firearms discharge has evolved, so has the inclusion and design of their safety mechanisms. Today, firearm safeties have been split into two fundamental types, the manual safety and the passive safety. Based on my 30+ years of experience in engineering, product design, firearm design, and firearm evaluation, these two types of safeties are defined below.

Manual firearm safety – a mechanism or manipulation that when *consciously engaged* renders a condition termed "safe", and said engagement renders the firearm inert by disabling a component or subsystem of the firearm's fire control/trigger mechanism. Deliberate manual manipulation of the firearm and/or its component(s) (e.g. safety selector) is required to toggle the fire control between a "ON/SAFE" condition and "OFF/FIRE" condition. Once the firearm has been placed in the "ON/SAFE" condition or the "OFF/FIRE" condition the firearm will stay in said condition without the aid of interaction with the operator until the firearm is manually manipulated to the alternate condition. Examples of common manual safeties include but are not limited to: controlling the cocked/uncocked condition of the firearm; quarter cock notches; half cock notches; decockers; placing the safety selector in the "ON/SAFE" position; and controlling the loading status of the firearm.

[15] Andrade, Tonio (2016), The Gunpowder Age: China, Military Innovation, and the Rise of the West in World History, Princeton University Press, ISBN 978-0-691-13597-7.

[16] Malans, Paul; Warren, Eric (2020), The History and Evolution of Ignition Systems, *AFTE Journal, Volume 52 Number 3.*

Passive firearm safety – a mechanism termed a "safety" that is *passively engaged* and disengaged through the operator's normal interaction with the firearm and requires no additional deliberate manual manipulation. When a passive safety is engaged it renders the firearm inert and/or prevents the firearm from discharging by disabling a component or subsystem of the firearms fire control/trigger mechanism. Passive safeties are typically engaged via springs which automatically engage the safety in the "ON/SAFE" position when the operator disengages from the firearm. As the operator of the firearm steps through the sequence to discharge the firearm, the passive safeties are toggled from the "ON/SAFE" position to the "OFF/FIRE" position through the operator's actions. When the operator ceases to manipulate the firearm (puts away or holsters the firearm) the passive safeties should automatically toggle back to the "ON/SAFE" condition. Examples of common passive safeties include but are not limited to grip safeties, firing pin/striker block safeties, magazine disconnect safeties, hammer block safeties, transfer bar safeties and inertia-based safeties.

Keeping the firearm unloaded until one is ready to use it is the most basic and effective manual safety inherent in all firearms. If a live round of ammunition is not loaded into the chamber of the firearm, the firearm cannot be discharged. While carrying a firearm without a round of ammunition in the chamber is technically a form of a manual safety, it is not what many people would initially describe as a manual safety. But those same people cannot dispute that keeping a firearm unloaded is the most effective way to prevent an accidental discharge. For example, firearm competitions require all firearms to be fully unloaded at all times unless the operator(s) is competing[17, 18], i.e. an exercise in the most effective form of manual safety. Therefore, for the sake of clarity, I will refer to manual safeties such as thumb safety selectors, decockers, quarter cock notches, lever safeties and the like as "traditional manual safeties".

Passive safety systems do nothing to prevent a firearm from being discharged if the pistol is being actuated through a normal and expected manner, i.e. properly gripping a loaded

[17] NRA F-Class Rules, Pages 33, 39, & 40. Available for download: https://competitions.nra.org/media/9392/2024-f-class-rulebook.pdf
[18] Annette Evans, 9,23,2017. *3-Gun Nation: The Beginner's Guide*. https://www.pewpewtactical.com/3-gun-nation-rules-beginners-guide/

pistol and pulling the trigger should cause the pistol to discharge. Only manual safeties have the ability to override the proper input to a pistol (i.e. a trigger pull) and prevent it from discharging. Therefore, any safety device the user must manually and willfully toggle between an "ON" and "OFF" position is considered a manual safety. When the manual safety of a pistol is engaged in the "ON/SAFE" position, properly gripping a loaded pistol and pulling the trigger should not yield a discharge. In fact, SAAMI (Sporting Arms and Ammunition Manufacturer's Institute) tests the manual safety of a firearm by suspending a 40-pound weight from the trigger while the safety selector is in the "ON/SAFE" position. If a passive trigger safety was considered a manual safety, all pistols employing only a trigger safety as its "manual safety" would fail the test because the 40-pound weight would disengage the tabbed trigger safety in every test.

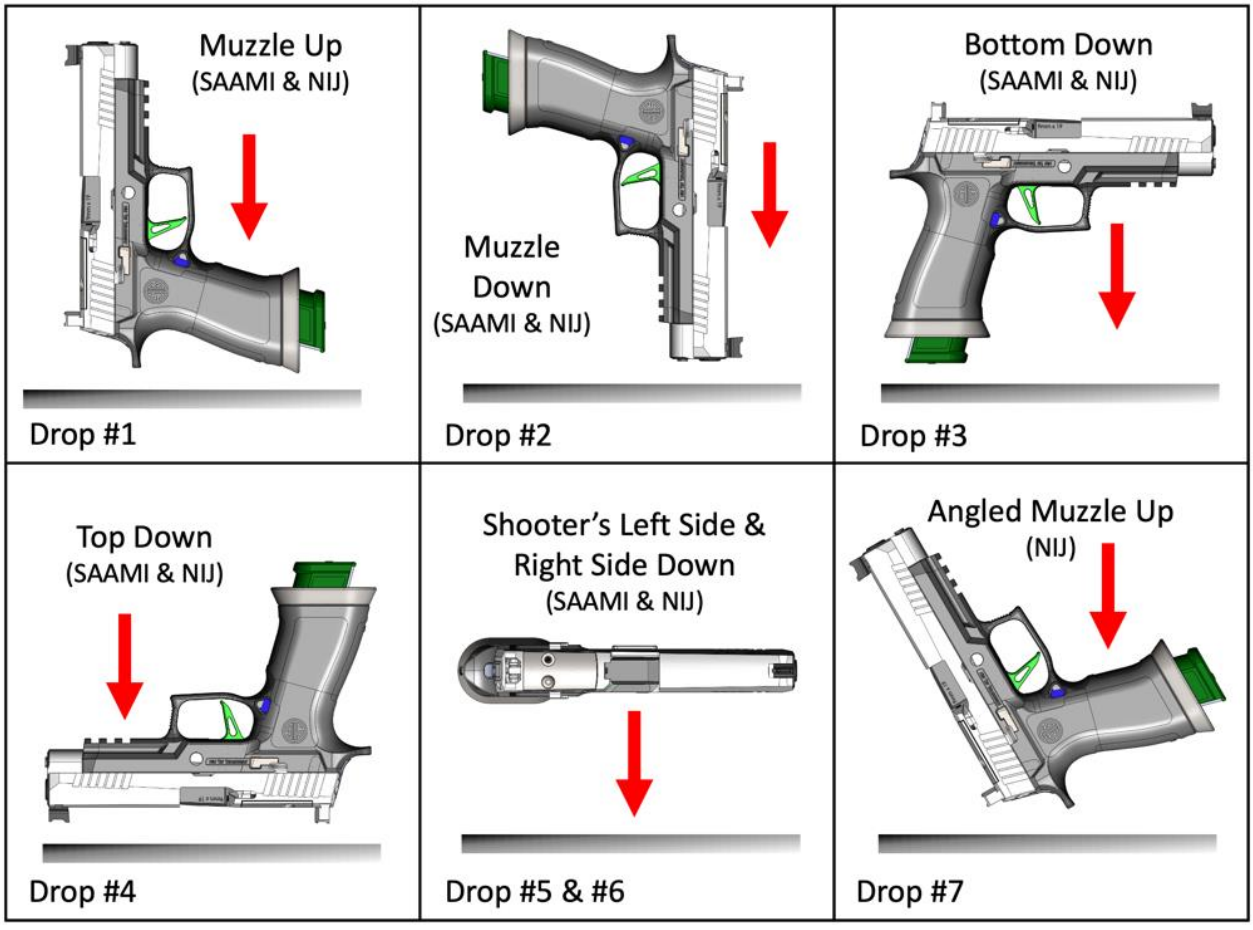


Figure 5.1.1: SAAMI and NIJ Drop Test Impact Orientations

Grip safeties, tabbed trigger safeties, internally balanced trigger system safeties and striker block safeties are not considered manual safeties because they are passively deactivated

by the user during the process of shooting the firearm and are activated automatically via springs when the user ceases handling the firearm. For example, the National Institute of Justice (NIJ) drop test criteria requires passive safeties that are "automatically applied by the pistol" when a firearm is dropped from the hand are not to be defeated during the test, while the manual safety selectors must be placed in the "OFF/FIRE" position. The NIJ defines manual safeties in firearms as user activated safety devices and grip safeties as a "passive safety device that requires an applied force on the grip before the pistol can be fired". Official abuse test procedures and pass/fail criteria have been developed by SAAMI, NIJ, NATO, the states of California and Massachusetts, and others to assess a firearms ability to prevent an uncommanded discharge during certain abuse conditions, such as the firearm being dropped. See Figure 5.1.1. During NIJ drop testing, a pistol equipped with passive safeties (grip safeties, bladed/tabbed trigger safeties, and striker block safeties) are not required to have the passive safety defeated. The post-2017 upgraded SIG Sauer P320 pistols meet and/or exceed the abuse pass criteria for all entities listed.

5.2. Design Safety Hierarchy

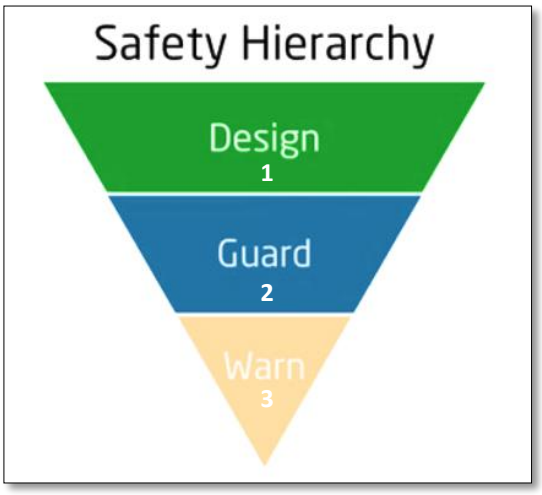


Figure 5.2.1: Product Design Safety Hierarchy

In the field of firearms, experiencing a discharge when a firearm is dropped is considered a safety hazard because the discharge could lead to property damage, personal injury and/or death. One of the tools an engineer has in their toolbox is the design safety hierarchy. The number of levels in the safety hierarchy can vary based on what is being

designed and the environment in which it is being used. For example, industrial machinery used in manufacturing, such as a high-pressure molding press, can have added administrative, engineering, and maintenance controls in addition to the operator's controls, whereas an in-home automated coffee pot may only have the operator's controls. In the field of consumer product design, a simpler three level hierarchy exists to assist in the minimization of hazard exposure during product use[19]. See Figure 5.2.1. Once a hazard has been identified, the safety hierarchy (and common sense) dictates the priority of the methods the engineer should employ to mitigate the hazard: 1) if the hazard can be designed out, it should be; 2) if the hazard cannot be designed out, it should be guarded against; and 3) if the hazard cannot be guarded against, it should have instructions and warnings in the operator's manual that educate the user to the existence of the hazard and how to avoid said hazard. For example, preventing a firearm from discharging due to a drop and/or impact can typically be designed out or guarded against, while the possibility of accidentally pulling the trigger when the firearm is in a discharge ready condition can only be minimized through warnings, education and proper training because it is inherent to the product itself.

Manual firearm safeties, safeties the operator must manually toggle "ON" and "OFF", are classified as guards, as they are dedicated parts or sub-assemblies added to the firearm with the purpose of preventing a hazard from occurring, i.e. the probability of the hazard occurring was not designed out, it was guarded against. When a manual thumb safety of a firearm is placed in the "ON/SAFE" position (which requires a user action), the trigger is often physically blocked from moving, i.e. the trigger is guarded against a displacement induced discharge. Manual safeties also come with the penalty of complicating the firing and securing processes, requiring additional training and practice to minimize user error in extreme conditions.

[19] Laughery, K. R., & Wogalter, M. S. (2010). The safety hierarchy and its role in safety decisions. In W. Karwowski & G. Salvendy (Eds.) Advances in Human Factors, Ergonomics and Safety in Manufacturing and Service Industries (pp. 1010-1016). Boca Raton, FL: CRC Press. Also on CD ROM: ISBN-13: 978-0-9796435-4-5: ISBN-10_0-979-6435-4-6.

The classification of a passive safety as a hazard prevention inherent to a design or an added guard that prevents a hazard is dependent on the implementation. Today, most all semi-automatic single action pistols include a firing pin/striker block passive safety that guards against discharge due to part breakage, alteration and/or drops/impacts. The firing pin/striker block assembly is added to the firearm to guard against the firing pin/striker moving if the trigger has not been pulled/actuated. However, some passive trigger safeties which prevent the trigger from moving due to inertia/impact, are added guards and others are inherent to the design. Glock is an example of a manufacturer that took the approach of guarding against inertia-based trigger displacement (through the use of a tabbed trigger safety), while SIG Sauer is an example of a firearm manufacture that designed out inertia-based trigger displacement induced discharges via employing a balance trigger system safety in the P320 pistol platform.

5.3. Unbalanced Fire Controls (Push Based Trigger Bars)

The Plaintiff and his consultants claim that "[d]espite having a trigger that is 'easy to pull,' Sig Sauer's P320 does not contain a trigger toggle (which is a form of a tabbed trigger)—a small tab in the face of the trigger that has to be fully depressed for the trigger to move rearward and fire the pistol."[20] Tabbed trigger safeties are intended to guard against the hazard of dropping the firearm. However, the P320 does not require this feature because, as explained below, the P320's internally balanced trigger system safety minimizes the risks associated with dropping a firearm such that they do not need to add an additional feature to guard against inertial based trigger movement.

The one thing all current mass-produced semi-automatic handguns have in common is they employ passive safety systems and/or manual safety systems to prevent drop induced discharges, as required by the multiple industry recognized drop test abuse standards. I have been unable to find, and neither plaintiff's counsel or their consultants have presented a single patent that claims any variant of passive trigger safety has been

[20] Complaint ¶ 17; Biller Report at pages. 19 and 21.

invented to prevent anything other than discharges due to the firearm being dropped or impacted.

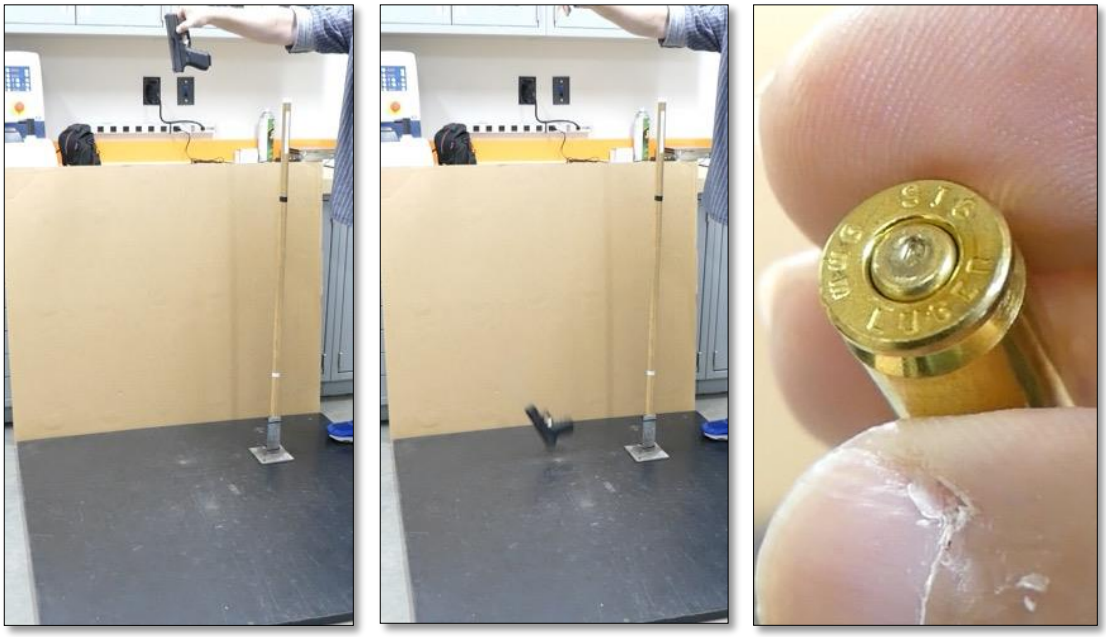


Figure 5.3.1: Glock M19 Failing Drop with Passive Bladed/Tabbed Trigger Safety Deactivated

Passive trigger and trigger system safeties are employed by many firearms manufacturers today to prevent inertia induced discharges (reasonably prevent the firearm from discharging when dropped or impacted). The one thing all firearms which employ passive bladed and hinged (tabbed) trigger safeties have in common is their fire controls are inherently unbalanced. This means that if the tabbed trigger safety is defeated and the firearm is dropped/impacted, the trigger could move and discharge the firearm due to its inertia. Figure 5.3.1 shows frames from a videoed test of a Glock M19 pistol being dropped (primed shell, no bullet) with its passive bladed/tabbed trigger safety disengaged. The last image shows the indented primer of the discharged shell, which means the pistol failed the test and discharged due to trigger displacement that was not prevented by the defeated trigger safety, i.e. without a passive bladed/tabbed trigger safety to guard against discharge inducing inertia-based trigger displacement, the Glock M19 cannot pass standard abuse drop tests. Inertially balanced trigger system safeties do not suffer from the same limitations.

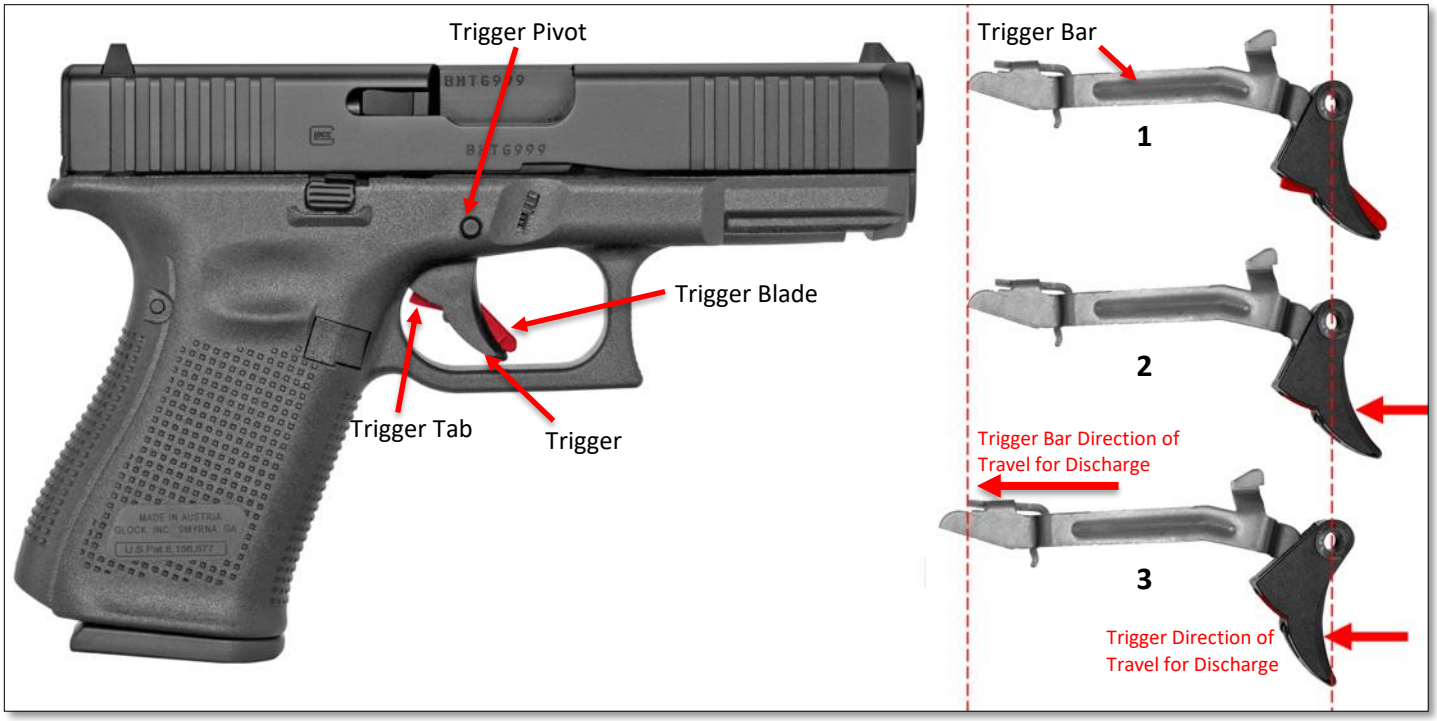


Figure 5.3.2: Glock's Passive Bladed/Tabbed Trigger Safety Operation

Currently, all Glock pistols (including the Glock 19 currently owned and used by the Plaintiff and the Glock 23 he formerly owned)[21] employ an unbalanced trigger mechanism, which is sometimes referred to as a push trigger bar system. Traditionally, push based trigger bar systems are prone to discharge when dropped if guards are not put into place to prevent inertia-based trigger displacement. Figure 5.3.2 shows Glock's implementation of a passive bladed/tabbed trigger safety (highlighted in red). The trigger safety is pivotally mounted within the body of the trigger. Positions 1 – 3 of Figure 5.3.2 show the process by which user pulls the trigger with their finger and the Glock pistol is discharged. In Position 1 the pistol is cocked, the trigger is forward and the passive bladed/tabbed trigger safety is in the "ON/SAFE" position. In the "ON/SAFE" position, the trigger safety blade protrudes out the front of the trigger (highlighted in red) and the trigger safety tab (also highlighted in red) is positioned between the body of the trigger and pistol's frame. In Position 1 it is impossible for the trigger to be displaced rearward until the trigger safety is rotated into the body of the trigger. Position 2 shows that when pressure is placed against

[21] Deposition Josua Glascock, dated March 6, 2025 at pages. 10 and 20.

the trigger's blade by the user's finger, the blade and tab rotate into the body of the trigger. Once the tab is rotated into body of the trigger, the trigger can be displaced rearward by force applied against the trigger's face. Position 3 is the discharge position of the trigger, showing that the user has depressed the trigger fully rearward and correspondingly, has pushed the trigger bar fully rearward to the discharge position.

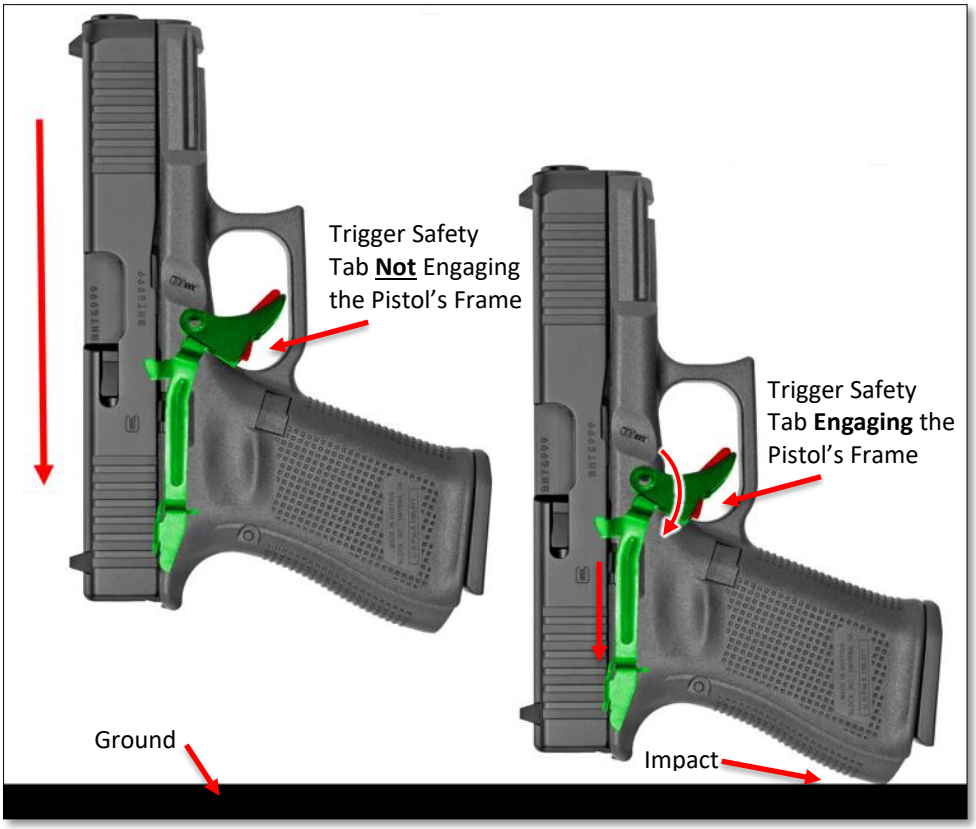
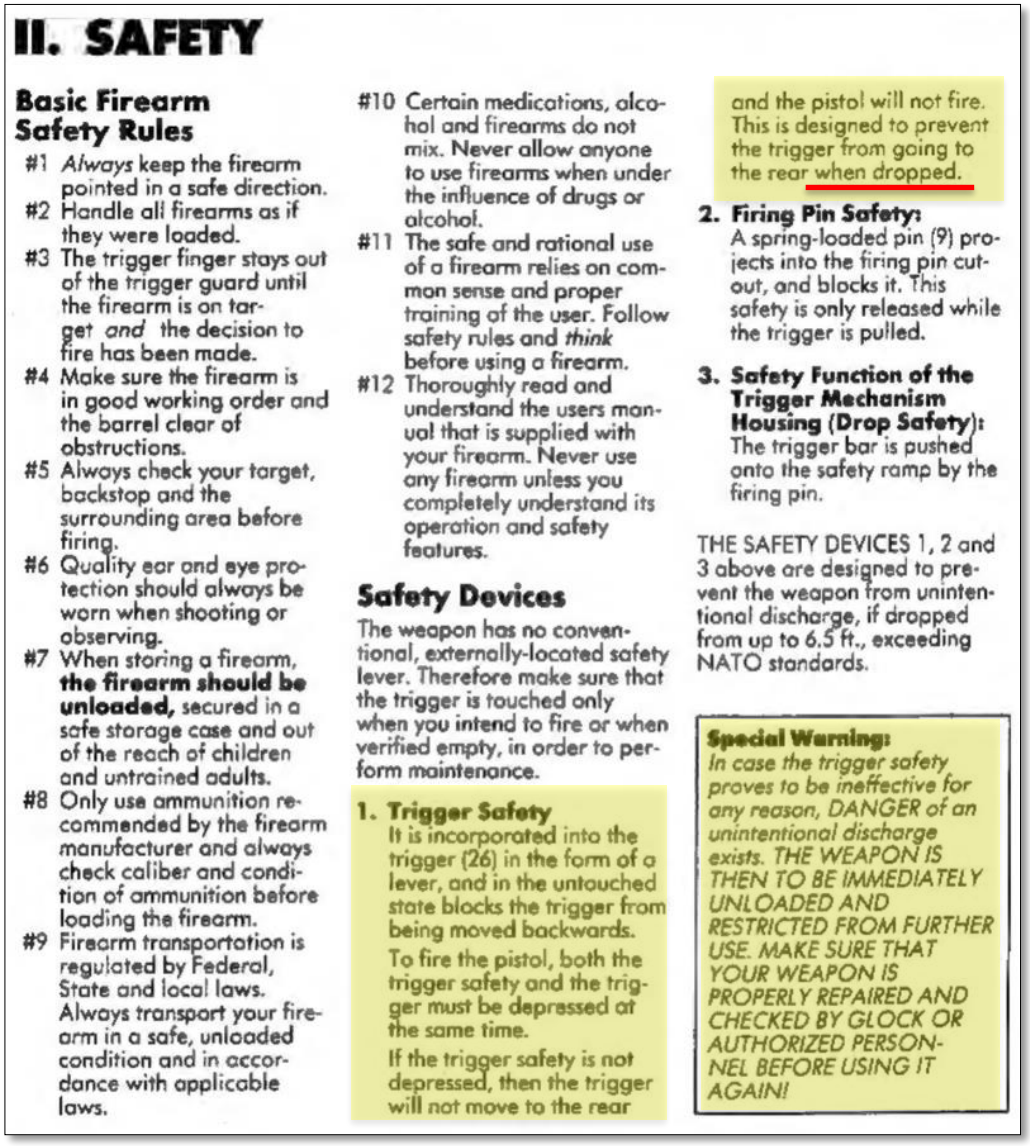


Figure 5.3.3: Glock Passive Trigger Safety Functionality when Dropped

Because the trigger and trigger bar were designed to move in the same direction in traditional push-based trigger bar systems (when the trigger is pulled rearward the connected trigger bar is pushed rearward), the fire control of a Glock is fundamentally unbalanced and prone to discharge when dropped unless a guard (tabbed trigger safety) is added to the trigger. See Figure 5.3.3. If the pistol is dropped with the muzzle facing upward, when the pistol strikes the ground the inertia of the trigger bar will act to pull the trigger to the discharge position (physically verified by the testing shown in Figure 5.3.1). However, because the Glock's trigger safety (the added guard) is balanced, the trigger safety will resist rotating within the body of the trigger if the pistol is dropped and the

trigger safety tab remains a physical barrier (guard) between the body of the trigger and the pistol's frame, preventing inertia-based trigger movement, i.e. preventing the pistol from discharging due to an inertia/impact. See Figure 5.5.



II. SAFETY

Basic Firearm Safety Rules

#1 *Always* keep the firearm pointed in a safe direction.
#2 Handle all firearms as if they were loaded.
#3 The trigger finger stays out of the trigger guard until the firearm is on target *and* the decision to fire has been made.
#4 Make sure the firearm is in good working order and the barrel clear of obstructions.
#5 Always check your target, backstop and the surrounding area before firing.
#6 Quality ear and eye protection should always be worn when shooting or observing.
#7 When storing a firearm, **the firearm should be unloaded,** secured in a safe storage case and out of the reach of children and untrained adults.
#8 Only use ammunition recommended by the firearm manufacturer and always check caliber and condition of ammunition before loading the firearm.
#9 Firearm transportation is regulated by Federal, State and local laws. Always transport your firearm in a safe, unloaded condition and in accordance with applicable laws.
#10 Certain medications, alcohol and firearms do not mix. Never allow anyone to use firearms when under the influence of drugs or alcohol.
#11 The safe and rational use of a firearm relies on common sense and proper training of the user. Follow safety rules and *think* before using a firearm.
#12 Thoroughly read and understand the users manual that is supplied with your firearm. Never use any firearm unless you completely understand its operation and safety features.

Safety Devices

The weapon has no conventional, externally-located safety lever. Therefore make sure that the trigger is touched only when you intend to fire or when verified empty, in order to perform maintenance.

1. **Trigger Safety**
It is incorporated into the trigger (26) in the form of a lever, and in the untouched state blocks the trigger from being moved backwards.
To fire the pistol, both the trigger safety and the trigger must be depressed at the same time.
If the trigger safety is not depressed, then the trigger will not move to the rear and the pistol will not fire. This is designed to prevent the trigger from going to the rear when dropped.

2. **Firing Pin Safety:**
A spring-loaded pin (9) projects into the firing pin cut-out, and blocks it. This safety is only released while the trigger is pulled.

3. **Safety Function of the Trigger Mechanism Housing (Drop Safety):**
The trigger bar is pushed onto the safety ramp by the firing pin.

THE SAFETY DEVICES 1, 2 and 3 above are designed to prevent the weapon from unintentional discharge, if dropped from up to 6.5 ft., exceeding NATO standards.

Special Warning:
In case the trigger safety proves to be ineffective for any reason, DANGER of an unintentional discharge exists. THE WEAPON IS THEN TO BE IMMEDIATELY UNLOADED AND RESTRICTED FROM FURTHER USE. MAKE SURE THAT YOUR WEAPON IS PROPERLY REPAIRED AND CHECKED BY GLOCK OR AUTHORIZED PERSONNEL BEFORE USING IT AGAIN!

Figure 5.3.4: 1992 Glock Armorer's manual Explains the Functionality of a Trigger Safety

Glock did not invent the passive bladed/tabbed trigger safety, but they did add it to their firearms to prevent discharges due to drop. Early Glock documentation explains the functionality of its bladed/tabbed trigger safety with respect to preventing drop induced discharges. See Figure 5.3.4. At no point does the manual state the bladed trigger safety is intended to prevent lateral, side or any other type of trigger actuations.

Figure 5.3.5: Guard-Based Passive Trigger Safety Systems

Patents for bladed trigger safeties date back as far as 1883. All the patents I have been able to find and review[22] relate to trigger safeties disclose the purpose of a trigger safety is to prevent the firearm from discharging when the firearm is dropped or experiences a shock/impact. The passive trigger safety system designs firearms manufacturers employ are as varied as the operators who use them. Figure 5.3.5 shows a collection of guard-based passive tabbed trigger safety systems in production today that are all employed on unbalanced (push-based trigger bar fire controls). The top row of passive trigger safeties all employ bladed safeties, but the width of the blade varies significantly with each design. The Canik Elite Flat blade is wider than the Smith & Wesson Performance Center blade,

[22] Trigger Safety Patents: US2401482, US339301, US290737, US5402593, US6553706, US6843013, US7690144, US9739557, US11920882

while the Smith & Wesson Performance Center blade is wider than the Glock Performance blade, and the Glock Performance blade is wider than Glock Standard blade. The width of the blades relative to the width of the triggers varies from approximately 20% to 80%. The thin Glock Standard trigger safety blade was originally designed in the 1980s, while the wider Glock Performance, S&W Performance Center and Canik TP9 Elite trigger safety blades have all been designed in the past 10 years. As trigger safety blade designs evolved, so did the consistency with which the user can actuate the trigger. The wider the blade, the less likely the operator is suffer from improper trigger finger placement and induce a failure to discharge during times of stress (finger placement hazard).

Interestingly, the blade of the Smith & Wesson Performance Center trigger and Canik TP9 Elite trigger do not fully seat into the frame of the trigger when pulled. Therefore, because the blade sets forward of the trigger frame, even when depressed, the blade for all intents and purposes is the trigger. When the operator pulls a Smith & Wesson Performance Center or Canik TP9 Elite trigger, they are actually just pulling the trigger blade, effectively nullifying the finger placement hazard, as it would be practically impossible to put one's finger just on the trigger's frame.

It is a recognized design limitation in mechanical engineering that each part that is added to a product introduces an opportunity for failure and reduced reliability. Most people initially envision the failure as a broken component, and it is true Walther, FMK and Taurus have all issued recalls on certain pistols because the trigger safeties failed to operate properly, but the failure can also take the form of the user no longer being able to operate the product properly. Smith & Wesson recognized the challenge a bladed trigger safety could pose to a user in a high-stress situation and patented (US 5,402,593) an alternate tabbed trigger safety to address potential ergonomic issues that could be encountered by Glock users:

> A safety feature of "Glock pistols is a lever fitted onto the trigger which must be actuated by the trigger finger before the trigger can be moved rearward to fire the weapon. This safety device comprises a thin blade pivotally mounted within a centrally located slot in the trigger which in its "safe' position, protrudes forwardly of the concave trigger face for engagement by the trigger finger and also includes an upper portion disposed between the trigger and the frame. When the trigger is actuated by the trigger finger, the blade will first

> rotate relative to the trigger to retract both portions into the trigger to dislodge the tipper ridge portion and permit the trigger to move freely within the frame.
> **While this arrangement may increase the safety of the weapon by preventing the trigger from moving rear ward when dropped**, many experienced shooters are not comfortable with the non-traditional feel of this construction as compared with that of a conventional trigger having a smoothly curved face. **Additionally, the protruding blade may increase the possibility of a gloved trigger finger becoming caught thereon and thereby affecting the operation of the trigger during firing**."[23]

The second row of passive trigger system safeties shown in Figure 5.3.5 occupy 100% of the trigger's width, a design approach to nullifying the finger placement hazard and employ hinged/articulating triggers. The Smith & Wesson hinged trigger safety is unique because it effectively divided the trigger into two pieces, an upper half and a lower half, whereas the bladed style trigger safeties just added a secondary part to the existing trigger. Therefore, because the lower half of the Smith & Wesson trigger safety becomes a functional part of the trigger that is required to displace the trigger for discharge, making the trigger safety an essential part of the trigger system. For example, applying an actuation force to just the blade of the Glock "trigger safety" only disengages the passive safety, while applying force to only the lower half of the "trigger system safety" of the S&W hinged/articulating trigger disengages the passive safety and can discharge the pistol. These passive trigger safeties are called articulating triggers because the triggers must move about two pivots for the trigger to fully rotate and discharge the pistol.

This advancement in trigger functionality and guarding against inertia-based trigger displacement presented by Smith & Wesson was expanded upon by Walther in the late 1990s and again most recently by FN. Their trigger systems do not divide the trigger body into two halves, but rather a full trigger body and an articulating pivot. This means, the operator's finger contacts the first half of the trigger system, the trigger body, which is attached to the second half of the trigger system, the articulating pivot, not both halves of the trigger system, as presented by Smith & Wesson. The trigger system safety of the Walther and FN primarily consists of the tab integrated into the back side of the trigger

[23] United States Patent US5,402,593.

body, the geometry and mass of the trigger body, and the articulating spring pivot. Essentially, the passive inertia safety of these trigger systems is the trigger body.

Figure 5.3.6: Functionality of a Walther P99 Passive Articulating Trigger Safety in Single Action Mode (100% Cocked)

Figure 5.3.6 shows how the articulating triggers must rotate about the secondary and primary pivots for the pistol to discharge when the trigger is pulled. The Walther P99 AS shown Figure 5.3.6.1 is in the fully cocked single action condition. The inertial safety tab is part of the trigger body and is located on the back side of the trigger, preventing the trigger from translating rearward to the discharge position. Figure 5.3.6.2 shows that as the operator begins to pull the trigger, the tab rotates up and into the pistol's frame about the secondary pivot. Figure 5.3.6.3 shows that after the tab has been displaced, the trigger can be fully pulled and rotated about the primary pivot to discharge the pistol. The feature

of note in the Walther and FN trigger system safeties is the trigger body acts as the passive safety and not a blade.

5.4. Balanced Fire Controls (Pull Based Trigger Bars)

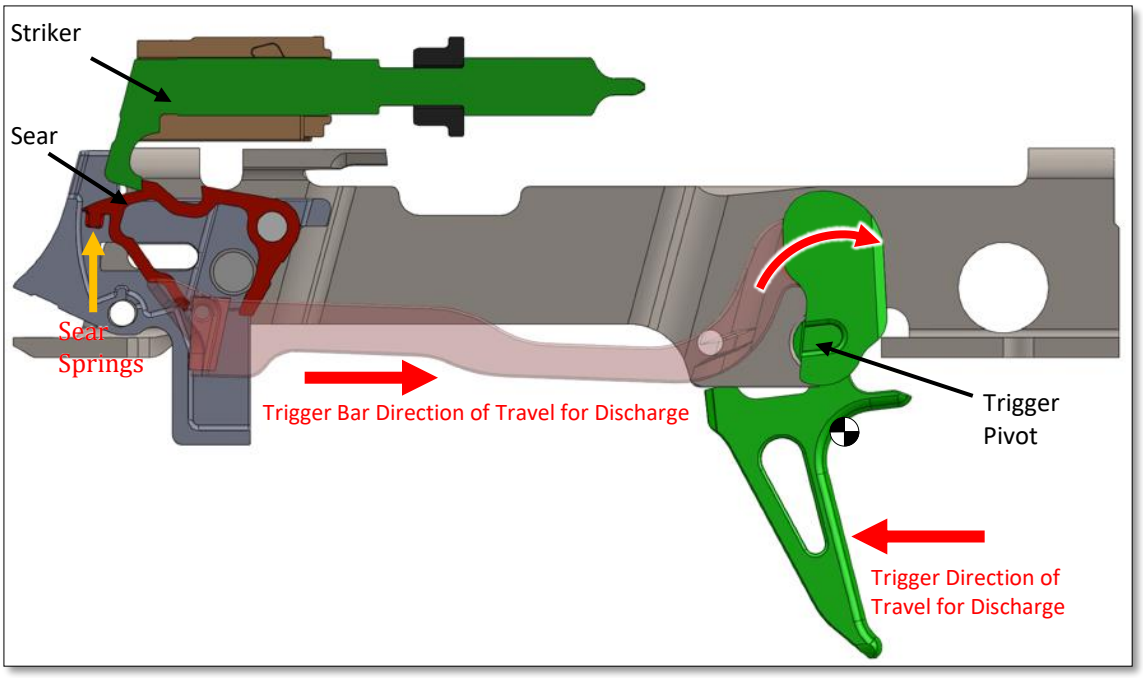


Figure 5.4.1: P320 Trigger System Safety

Rather than guard against the impact/drop discharge hazard, SIG Sauer took the alternate approach of designing out the potential hazard in the P320 by neutralizing/minimizing the inertial effect induced by an impact/drop. As discussed above, per the Design Safety Hierarchy, it is preferrable to design out a hazard from a product design than to just guard against it by adding a tabbed trigger safety. The P320 employs a balanced trigger mechanism, which means, as the trigger is rotated rearward, the trigger bar is pulled forward. Therefore, the trigger and trigger bar move in opposite directions and have been designed to balance each other out. See Figure 5.4.1. This balancing of the trigger and trigger bar inertial forces allowed SIG Sauer to engineer out the hazard of a drop induced discharge through the design of the trigger, trigger bar, trigger spring and their respective pivots. Collectively, these aspects of the P320's fire control act together as an inherent passive trigger system safety eliminating the need for a bladed trigger safety. If a P320 is dropped with the muzzle pointing up, the inertia of the trigger bar attempts to rotate the

trigger counterclockwise, counteracting the inertia of the trigger. Similarly, if a P320 is dropped with the muzzle pointing down, the inertia of the trigger attempts to rotate the trigger counterclockwise, counteracting the inertia of the trigger bar. See Figure 5.4.2. SIG Sauer's choice to use a balanceable fire control allowed them to design a passive trigger system safety into the P320, that doesn't require the addition of dedicated components that could fail in the field.

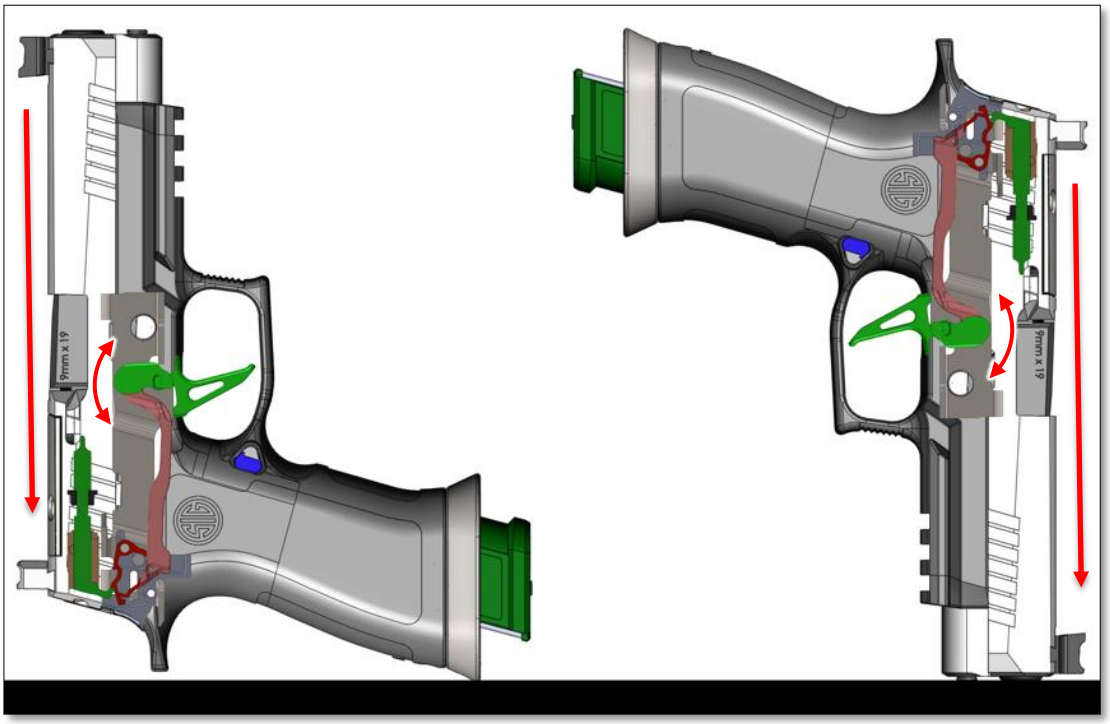


Figure 5.4.2: The P320's Passive Balanced Trigger Safety System

The SIG P320's fire control is set apart from the other striker fired pistols, which incorporate passive tabbed trigger safeties or tabbed trigger system safeties, because the SIG P320 incorporates a balanced trigger mechanism and does not need a tabbed trigger safety to pass standard industry abuse tests, such as drop testing. Glock pistols have always needed and still need a tabbed trigger safety to pass abuse tests (i.e., drop tests), because they do not employ a balanced trigger mechanism. The design purpose of a passive trigger safety or trigger system safety is to prevent a discharge during abuse, such as drops and impacts, and not to prevent a discharge due to inadvertent trigger contact. Aside from keeping the firearm unloaded, engaged manual safeties are the only proven way to neutralize trigger contact. Adding unnecessary parts and/or mechanisms to designs

is a practice disapproved of by professional design engineers. Therefore, adding a tabbed trigger safety to a P320 pistol, above and beyond the balanced trigger system safety it is already equipped with, would not serve to enhance the robustness of the pistol, but rather would only add another potential reliability failure point and diminish reliability.

5.5. External Safeties

The consultants for the Plaintiff have opined SIG Sauer P320 pistols are defective because they do not employ external safeties[24]. External safeties are not a third classification of a firearm safety, but rather a descriptor being used by plaintiffs' attorneys that encompasses all manual and passive firearm safeties that have one or more components that are accessible by the user from outside the firearm. For example, per their definition, manual thumb safeties and passive trigger safeties are both considered "external safeties". Within the firearms industry, the term "external safety" is traditionally associated with manual safeties and not passive safeties. A thumb safety would be considered an external safety and bladed/tabbed trigger would not.

The opined defect of a lack of an external safety in the P320 pistol platform is false on multiple levels. First, during the Putative Class Period, consumers had the choice to purchase P320 pistols with or without a manual thumb safety (a safety that is inarguably "external").[25] Therefore, the presence of an external manual thumb safety is not a "defect" but rather a feature of the P320 that can be added or removed based on consumer preferences/philosophy of use.

Second, if the trigger and trigger system safeties employed by Glock, Walther, Smith & Wesson, FN and other handgun manufacturers are considered "external safeties" because they contain components directly accessible by the operator (tabs for Glocks and triggers for S&W, Walther and FN), then all SIG P320 pistols have an external trigger system safety

[24] Gatrost Report at 62-63 ("Based on the materials I have reviewed, the Defect exists in every Sig Sauer P320 sold without a manual thumb safety.").
[25] Declaration Tom Taylor. dated March 17, 2025 at ¶ 62; Declaration Matt Taylor dated March 17, 2025 at ¶ 6.

due to its dynamically balanced trigger bar and trigger system that is directly accessed by the user through normal and expected use of the firearm (depressing the trigger).

Figure 5.5.1: Examples of Firearms with the Triggers Functioning as the Passive External Trigger Safety

While Mr. Gatrost claims that "the full size P320 was the only handgun I examined that is fully energized anytime a round was chambered that did not have at least one external safety feature,"[26] Mr. Gatrost's opinion conflates safety features for drop safety with a manual safety for the reasons I outlined above and is incorrect. There are multiple pistols that are analogous to the P320 and do not contain a manual thumb safety. The Smith &

[26] Gatrost Report at ¶ 44 and ¶ 65.

Wesson M&P, Canik TP9 Elite[27], Walther P99 AS[28], FN Reflex[29] and even Glock pistols equipped with the Glock Performance Trigger are examples of pistols that have single action modes that are approximately 100% cocked (i.e., fully energized) and employ passive trigger system safeties and do not have manual thumb safeties on all their models, rendering them extremely similar to the P320 platform in operation and functionality. When loaded, cocked and ready to fire condition, the only design features these firearms employ to prevent excessive trigger displacement and discharge due to the pistol being dropped is their passive trigger system safeties. Just as SIG Sauer optimized its trigger system to minimize inertia induced trigger displacement, the designers of the triggers of the Canik TP9 Elite, Walther P99 AS and FN Reflex have optimized the geometry, mass and center of gravity of their trigger safeties to minimize the rotation of the trigger safety when the pistol is dropped, keeping the trigger's tab effectively engaged with the frame and preventing inertia induced trigger movement that could induce a discharge. See Figure 5.5.1.

Additionally, all four trigger systems use the trigger finger of the user to override the inertial dampening properties of the passive trigger safety system and allow displacement of the trigger via finger pressure applied to the trigger. The functionality in all four trigger systems is equivalent – preventing the firearm from discharging if the firearm is dropped and promoting a discharge if the trigger is pulled by the operator. Therefore, if the passive trigger and trigger system safeties of the Glock, Smith & Wesson M&P, Canik TP9 Elite, Walther P99 AS and FN Reflex pistols are considered external safeties, the passive trigger system safety of the SIG P320 must also be considered an external safety, per the definition employed by the Plaintiff's consultants[30], as the user of each firearm must directly interact with the external passive safety, be it a blade or portion of the body of the trigger, to disengage the passive safety (highlighted in red in Figure 5.3.5 and Figure 5.5.1). SIG Sauer

[27] The blade of the Canik TP9 Elite trigger does not fully seat into the frame of the trigger when pulled. Therefore, because the blade sets forward of the trigger frame, even when fully depressed, the blade for all intents and purposes functions as the trigger.
[28] The Walther P99 AS has single action and double action modes. It is placed into double action mode through the use of a decocker button located on the top of the slide. The articulating trigger (highlighted in red) acts as an external passive trigger safety in both double action and single action modes.
[29] The FN Reflex is a single action only pistol that employs a hidden hammer (striker equivalent) system. The pistol's only external safety is its articulating trigger (highlighted in red).
[30] Gatrost Report at ¶ 47.

did not design a less capable trigger system safety in the P320, as the Plaintiff claims, instead it innovated and chose to design out susceptibility of the drop hazard, rather than just implementing an additional component to guard against it.

The reality is that the SIG Sauer P320 pistol platform is not a unicorn in the market for pistols as the consultants for the Plaintiff opine. Firearms manufacturers such as Beretta, SIG Sauer, Kahr Arms, and SCCY Firearms have been using pull-based trigger bar fire controls for decades. The use of a pull-based trigger bar fire control in conjunction with a striker-based pistol is immaterial and does not set the P320 platform apart. The fire control doesn't know if a striker or hammer is delivering the energy to the firing pin tip and discharging the firearm. The fire control just controls if the discharge initiation energy is released and not the means by which it is delivered.

6. Firearms and Philosophy of Use (One Size Does Not Fit All)

Over the years various police and military agencies have adopted the policy that firearms are not to be carried with a round in the chamber. For the better part of the 20th century, carrying a firearm with an empty chamber was the standard for military, police, and civilians[31]. In the firearms community, the most well-known organization that promotes this method of carry is probably Mossad (the intelligence agency of Israel), and this philosophy of carrying a firearm without a round of ammunition in the chamber of a firearm is commonly called the "Israeli carry" method. However, the "Israeli carry" method predates Israel and was initially popularized by W. E. Fairbairn, a close quarters combat specialist, who wrote the book, *Shooting to Live with the One-Hand Gun*.

Today, the empty chamber carry method has become controversial among many in the U.S. shooting community, with some shooters not only insisting a firearm should be carried in the loaded condition, but also the firearm may not be equipped with a traditional manual safety. In fact, the Plaintiff, employed by a law enforcement agency, testified that he

[31] Grobman, Ron (December 7, 2022). *Everyday Carry Chronicles: The Truth About 'Israeli Carry'*. https://www.thetruthaboutguns.com/truth-israeli-carry/

carries a loaded Glock 19 pistol without a manual safety because it is required by his employer[32].

This philosophy theorizes that minimizing the number of steps it takes to draw, aim and fire a weapon minimizes the opportunity to forget steps that may compromise a shooter in a high threat situation. Immigration and Customs Enforcement (ICE), an organization which reportedly employed Mr. Gatrost, consultant for the plaintiff, subscribed to such a philosophy of use. Throughout the Putative Class Period, SIG Sauer offered the P320 pistol platform in variants that did and did not employ manual thumb safeties.[33] When ICE evaluated the SIG Sauer P320 pistol as the standard issue handgun for its field officers, the solicitation specifically required that the prospective handguns could not be equipped with a manual thumb safety [34]. After evaluation, ICE awarded the contract to SIG Sauer and the P320 is currently the standard issue ICE handgun.

Striker Fired Pistol Manufacturer	Manual Thumb Safety Variants	No Manual Thumb Safety Variants
SIG Sauer	✓	✓
Smith & Wesson	✓	✓
Ruger	✓	✓
Springfield Armory	✓	✓
SCCY	✗	✓
Kahr Arms	✗	✓
Canik	✗	✓
CZ	✗	✓
Heckler & Koch	✗	✓
Walther	✗	✓
Glock	✗	✓

Figure 5.1: Manual Thumb Safety Availability vs. Pistol Manufacturer

The context in which a firearm is being deployed and by whom it is being used matters. Contrary to the popular saying, "practice makes perfect", practice only reduces the potential for mistakes, it cannot eliminate the potential. Stress can hugely affect the way people perform tasks for which they have been trained. Most people in my experience

[32] Glasscock Deposition. Tr. dated March 6, 2025 at 134.
[33] Tom Taylor Declaration. ¶ 62; Matt Taylor Declaration. ¶ 6.
[34] DHS-ICE Solicitation, Solicitation Number: HSCEMS-16-R-00003. Part 1 – The Schedule. Section C, Description/Specifications/Statement of Work (SOW). Subsection C4, Duty Pistol Specific Requirements (Pass/Fail). Criteria C4.9 Safety Devices, Requirements C4.9.1 and C4.9.3. Page C8.

have been speaking a single primary language for most of their lives, yet it is still common for people to use the wrong word, misspeak under normal everyday conditions, develop a stutter, or even lose the ability to speak in a crisis. It is easy to see that practicing speaking for a lifetime has not made people immune from verbal mistakes. But comparatively, the mistake of leaving the occasional word out of a sentence and the mistake of forgetting to disengage a manual safety on a firearm in a crisis can yield catastrophically different results. In physics and science there is a cost to everything, and one size does not fit all. It is for this reason many organizations have mandated their pistols cannot be equipped with a manual safety, such as ICE solicitation previously discussed[35]. Glock and other striker fired pistols, such as the SIG Sauer P320, offer pistol variants that do not employ manual safeties to satisfy their customer bases (such as the Glock 23 Plaintiff owned and loaded Glock 19 pistol Plaintiff uses both of which did not have a manual safety) that subscribe to the corresponding philosophy of use. However, the P320 and other striker fired pistol manufacturers do offer variants that employ a manual safety to satisfy customers that subscribe to opposing philosophies of use. If a user wants a manual safety on their pistol, they can purchase a pistol – including a P320 – equipped with a manual safety[36]. Figure 5.1 shows the availability of striker fired pistols equipped with manual thumb safeties among a striker fired pistol manufacturers. Every manufacturer evaluated made a striker fired pistol model variant that was not equipped with manual thumb safety. However, fewer than half the manufacturers offered at least one striker fired pistol model with a manual thumb safety option.

Contrary to the Plaintiff's assertions, the P320 pistol platform is not defective because it does not include a manual safety, has a "light" trigger pull, and its striker is nearly fully energized as it still meets and/or exceeds all recognized industry abuse standards. As explained above, the P320 is equipped with a dynamically balanced trigger and trigger bar, the striker block safety and the redundant sear-to-striker engagement surface, which acts to meet and/or exceed all recognized industry abuse standards. If the consumer wants to

[35] Matt Taylor Deposition. pages 142 and 190.
[36] Tom Taylor Declaration. ¶ 62; Matt Taylor Declaration. ¶ 6.

purchase a P320 without a manual thumb safety, they can do so without adversely affecting the pistol's ability to pass the industry abuse standards. The philosophy of use SIG Sauer's customers employ and which products they choose to purchase is within their freedom of choice. Which firearm a customer chooses to employ to protect themselves or their family is not for SIG Sauer (or plaintiff's consultants) to dictate. The philosophy of "one size fits all", does not mean "one size fits all well". A single solution or approach cannot be effectively applied to everyone or every situation because people have different needs, preferences, and circumstances that require individualized consideration. The subject SIG Sauer P320 pistol platform allows consumers the freedom to tailor the P320 to their philosophy of use.

7. Safeties (Manual and Passive) Cannot Prevent Negligent Discharges

A negligent discharge of a firearm occurs when a gun is accidentally fired due to carelessness or recklessness behavior on the part of the operator/shooter. The shooter is responsible for any injuries, property damage, or death that results from a negligent discharge. Causes for a negligent discharge may include, but are not limited to, poor trigger discipline, not following gun safety rules, lack of attention to safety, and complacency. As I explain below, manual thumb safeties, trigger safeties, and heavier trigger pulls cannot eliminate the risk of negligent or inadvertent discharges. The most effective safety measure is proper training and discipline, including being familiar with the pistol and its owner's manual[37]. Heavy trigger pull weights and large displacement triggers may exaggerate the shot placement hazard inherent in all firearms by reducing accuracy; as demonstrated by a study of a major law enforcement agency that reduced the trigger pull weight of their Glock pistols by approximately 50%. Finally, trigger actuations caused by poor holster fit and holster user error is an issue beyond the control of all pistols and is not unique to the SIG P320.

7.1 Safeties Are Not a Substitution for Training and Discipline

In December of 2015, the Office of Inspector General County of Los Angeles issued the report, *Assessing the Rise in Unintended Discharges Following the Sheriff's Department's Conversion to a New Handgun*[38], describing an increase in unintended discharges experienced by Los Angeles Sheriff's Department (LASD) officers when they switched their standard issue sidearm.

Firearm Make & Model	2012	2013	2014	2015
Beretta 92	3	4	1	1
Smith & Wesson M&P 9	0	8	28	14

Figure 7.1.1: LASD Unintended Discharges per Firearm Type

[37] For example, the National Shooting Sports Foundation (NSSF) Firearm Safety Rules state that pistol operators should "Learn the mechanical and handling characteristics of the firearm you are using." https://www.nssf.org/download/nssf-firearm-safety-depends-on-you/?wpdmdl=51178. I understand that Mr. Glasscock has never read his owner's manual for his P320, Taurus TCP, or Glock 19/23. Glasscock Deposition. Tr. dated March 6, 2025 at pages 15, 70 and 123; Glasscock Deposition. Tr. dated May 16, 2023 at pages 50-51.

[38] Katz, Walter W. (2015, December). *Assessing the Rise in Unintended Discharges Following the Sheriff's Department's Conversion to a New Handgun*. Office of Inspector General County of Los Angeles

The LASD was transitioning from a hammer fired, double action/single action Beretta 92FS pistol with a manual thumb safety to a striker fired pistol equipped with a passive trigger safety and no manual thumb safety, a Smith & Wesson M&P 9. The transition period evaluated in the report was from 2012 to 2015. During the transition period, the number of unintended discharges experienced with the Beretta declined while the number of unintended discharges experienced with the Smith and Wesson increased. See Figure 7.1.1. Statistically, it is expected for data distributions to shift within two populations when one population is decreased in size as the other population is increased in size, but the documented increase in Smith and Wesson pistols related to unintentional discharges substantially outpaced the associated decrease in the Beretta pistol population. Anytime a new product is introduced to users, an acclimation period is expected as the plan for change intersects with the reality of change. Ultimately, the Inspector General's report opined that it was a lack of training that significantly contributed to the increase in unintended discharges. In other words, the planned level of training with the new firearms did not meet the amount of training that reality ultimately deemed necessary. The Inspector General's report did not attribute the cause of the increased negligent discharges to a defect in the M&P 9 despite its lack of a manual thumb safety and its use of a passive safety, which makes the user's interface equivalent to the SIG Sauer P320's interface.

This report also confirmed the reality that a manual safety does not eliminate the chance of an inadvertent discharge. The LASD employed Beretta 92FS pistols equipped with a manual thumb safety that also acts as a decocker, and every year unintended discharges were still recorded despite this feature. To be clear, when the manual thumb safety of a Beretta 92FS is engaged, the trigger is rendered inoperable, the hammer is decocked and fully down, and a physical block is placed between the hammer and the firing pin. The only way to render a Beretta 92FS more inert would be to unload it, but the LASD was still experiencing unintended discharges with the Beretta 92FS every year. Meaning, the pistols were loaded with a live round of ammunition in the chamber, the manual thumb safety was in the "Off/Fire" position, as the trigger was actuated.

The LASD experienced a total of 13 unintended discharges in 2012. Of those 13 discharges, seven of the firearms were identified with enough detail to determine if they were equipped with a manual safety. Six of the seven firearms that experienced an unintentional discharge were equipped with a manual safety switch. The seventh firearm, a Glock 27, was also equipped with a passive bladed trigger safety. These multiple instances of unintentional discharges illustrate the existence of a manual thumb safety, a passive trigger safety and/or a longer trigger displacement will not stop a firearm from discharging when said firearm is loaded, and the trigger is pulled when the manual safety is not employed. This is not to say the Beretta 92, Smith & Wesson M&P or Glock pistols are unsafe firearms. They are safe, and I own and shoot each of them, as I do my SIG P320s. The reality is no safety system has ever been implemented on a firearm that can prevent the firearm from discharging when human error circumvents the safety system(s) because a firearm should fire when the trigger is pulled and would be defective if it did not.

7.2 The Shot Placement Hazard

Plaintiff and his consultants claim the trigger pull characteristics of the SIG P320 (weight and length of trigger pull) also constitute one part of the three-part defect as they increase the risk of unintentional discharge[39]. However, the consultants for the plaintiff cite no studies or testing to support their opined defect/hazard theory. In fact, studies exist which refute their opinions by showing that the use of a standard/lighter trigger pull did not increase unintentional discharges while measurably reducing the shot placement hazard. For example, in August 2021, the New York Police Department (NYPD) announced it was going to begin issuing Glock firearms with the standard trigger spring (with a 5.5 pound advertised trigger pull) rather than the historical N.Y.2 trigger spring (with a 12-pound advertised trigger pull). This decision was made after the NYPD conducted a large study of its recruits and found that the participants equipped with the lighter standard trigger pull Glocks had accuracy scores, on average, 5 points higher than those equipped with the

[39] Motion for Class Certification. ¶ 24

Glocks with the heavier 12-pound trigger pull. If an officer is unable to hit what they are shooting at, the missed shot constitutes a hazard to the surrounding people and property. There was also no reported increase in accidental discharges with the lighter trigger pull standard Glock firearms. This trend has been seen by other law enforcement agencies in the area as well.[40] Thus plaintiff's consultants have no evidence to support their opinion the SIG P320 has a "light" trigger pull as they do not define what constitutes a "light" trigger pull and ignore data that shows the trigger pull weight of SIG P320s' is consistent with its competitor pistols (Glocks, Smith & Wesson, Walther, Canik, H&K …). See Figure 7.2.1[41]. To put the false claim of the plaintiff and his consultants in perspective, Mr. Glasscock's pistol had an average trigger pull weight of 6.425 pounds, which is greater than 81% of the non-SIG pistols shown in Figure 7.2.1. Therefore, if the Plaintiff and his consultants claim of "light" trigger pull is to be believed, then a majority of the striker fired pistol market has a "light" trigger pull weight.

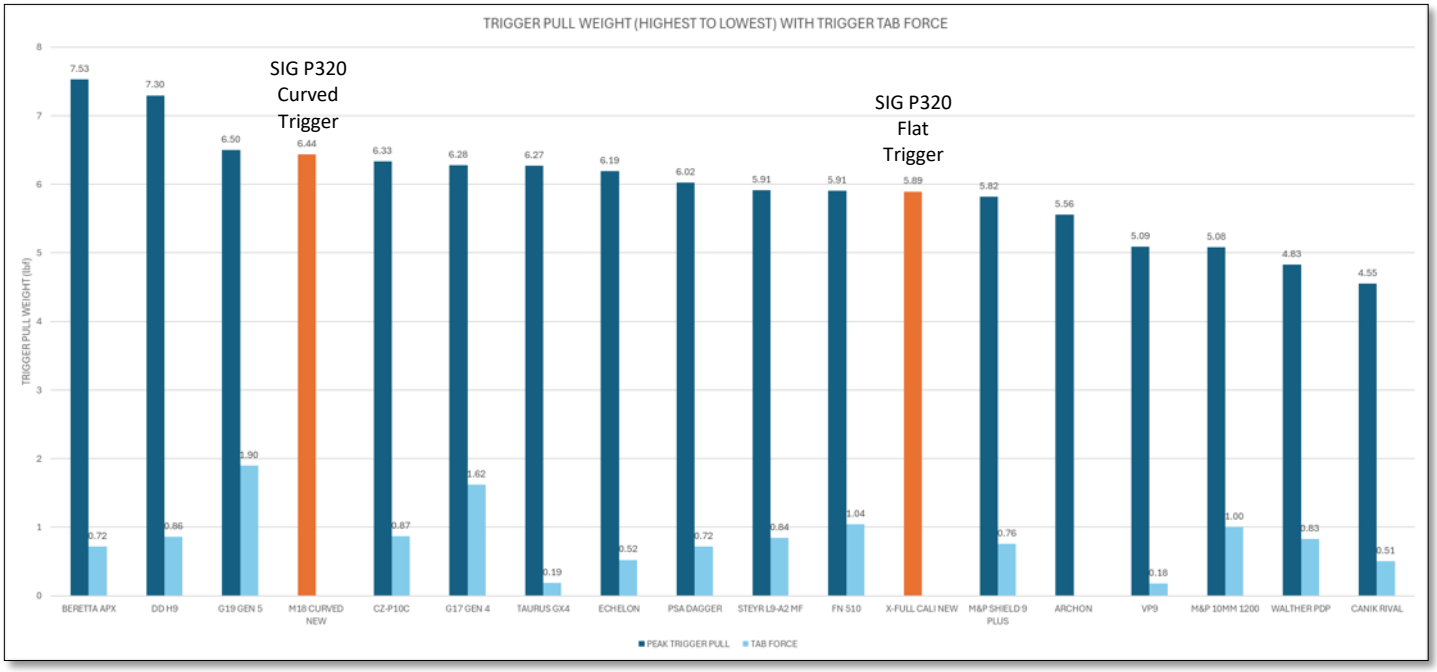


Figure 7.2.1: Peak Trigger Pull Weights Compared

[40] Ziegler, Suzie. NYPD to give new recruits guns with lighter trigger pulls for improved accuracy. Police 1. August 27, 2021. Available at: https://www.police1.com/police-training/articles/nypd-to-give-new-recruits-guns-with-lighter-trigger-pulls-for-improved-accuracy-wv2XnYZzEpfDa2DH/

[41] SIG Sauer Competitor Database

The lack of increase in accidental discharges reported by New York law enforcement indicates that despite Glock's use of a passive trigger safety (bladed/tabbed trigger safety), claims of accidental discharge were still experienced among Glock users. This is significant because the Plaintiff and his consultants make the unsubstantiated claim the Glock platform is a "safer" alternative to the SIG P320[42]. Not so. Claims of Glocks accidentally discharging reportedly date back to its adoption in the US firearms market (1980s and 1990s). In 1998, 60 lawsuits were active against Glock across the nation. In the same year, the Washington Post reported[43] that within the first ten years of the Washington D.C. police adopting Glock 9mm pistols, there were more than 120 accidental discharges with the handguns, citing at least one wrongful death, nine citizens unintentionally shot, and nineteen officers accidently shooting themselves or other officers. Interestingly, just as was found in the LASD report, the root cause for the unintended discharges was identified as a lack of adequate training and not a defect with the firearm.

7.3 Holsters and the Trigger Access Hazard

Contrary to the Plaintiff's unsubstantiated testimony that the P320 frequently inadvertently discharges in holsters[44], trigger actuation via a foreign object is a hazard shared by all trigger finger operated firearms, regardless of type of passive trigger and/or trigger system safety employed. Balancing the ability to prevent foreign objects from pulling the trigger of a holstered firearm with providing quick and repeatable access to the pistol by the operator is a design challenge holster manufacturers have struggled with since the invention of the trigger. The additional requirement of allowing the holster to accommodate a pistol equipped with a light complicates the design challenge further. The lights are typically mounted under the barrel of the pistol and in line with the trigger, allowing the operator to turn the light on and off with their trigger finger. But this arrangement also requires the holster to be open around the trigger area to facilitate the holstering and unholstering of the light bearing firearm. By definition, a holster opening

[42] Gatrost Report at ¶¶ 49, 64-66, 79; Complaint at ¶¶ 19-20.

[43] Leen, Jeff and Horwitz, Sari. Armed and unready, city pays for failure to train officers with sophisticated weapon. Washington Post. November 18, 1998. Available at: https://www.washingtonpost.com/wp-srv/local/longterm/dcpolice/deadlyforce/police4full.htm

[44] Glasscock Deposition. Tr. at pages 55 and 110.

around the trigger area means the trigger is not fully protected from foreign objects when the firearm is being carried, which compromises the functionality of the holster, i.e. the trigger is susceptible to actuation via foreign objects.

Keys of the Officers Identified | Assisting Officer's Pistol Discharges

Figure 7.3.1: Sidearm Discharge while Officer Attempts to Lift Suspect's Legs

Plaintiff argues that several unintended discharges of P320 pistols have been captured on video and reported on by the media[45]. However, Plaintiff omits these instances can be explained and provide no analysis to support a hypothesis of defect. Figure 7.3.1 shows images from a video[46] of a SIG P320 pistol discharging while fully holstered. The discharge was initiated when an officer of the Montville CT, police department attempted to lean down and pick up the legs of a suspect that was being restrained by two other officers. It appears the restraining officers had key chains attached to their duty belts in similar locations. As the assisting officer attempted the lift, the video shows his holster pushed into the lower half of the officer standing to the left of the suspect. As the crouching officer straightened up, his holster appears to cause the standing officer to stumble as the pistol discharged due to the contact. A detailed review of the chest cam video indicates the keys of the standing officer most probably entered the holster of the crouching officer and

[45] Motion for Class Certification. ¶ 50.

[46] The Day. July 26, 2023. Available at: https://www.youtube.com/watch?v=fr7-cwG210c&rco=1

pulled the trigger due to the movement of the crouching officer's holster relative to the standing officer's keys. Plaintiff consultants opined without review of the physical evidence that a pistol equipped with a tabbed trigger safety, such as a Glock, would prevent this type of foreign object induced discharge. Conveniently, the consultants have provided no data, studies or scientific evidence to substantiate their claim while omitting or being oblivious to the existence of contradictory scientific evidence.

Keys on the Assisted Officer's Belt | Holstered Glock on the Assisting Officer's Belt | Damage to the Glock's Trigger

Figure 7.3.2: Foreign Object Discharges Fully Holstered Pistol Equipped with a Tabbed Trigger

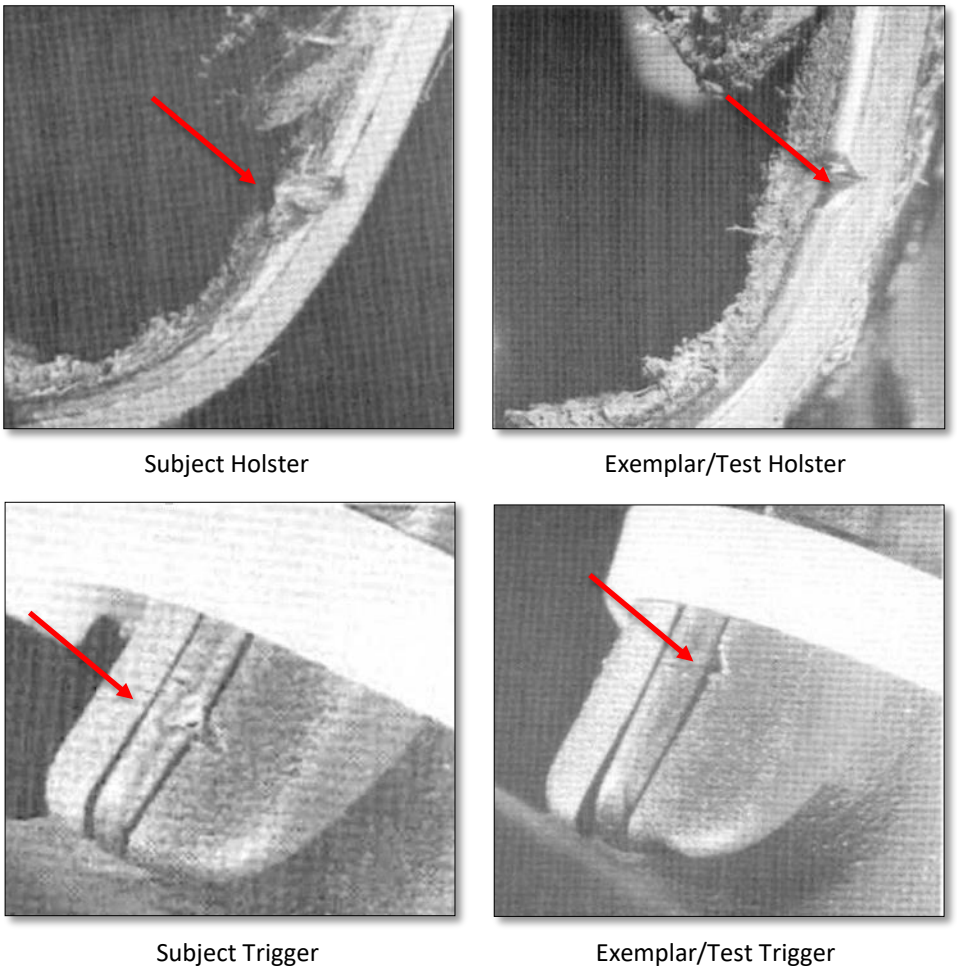
The Association of Firearm and Tool Mark Examiners (AFTE) is an international non-profit organization dedicated to the advancement of firearm, ammunition and tool mark identification through the forensic sciences. AFTE maintains a journal through which its members can publish articles relative to the practice and/or advancement of the science. In Volume 29, #3 of the summer 1997 journal[47], an article by J.A. Yves Quevillon of the R.C.M. Police Central Forensic Laboratory, Ottawa, ON, Canada outlines an investigation into the discharge of an officer's holstered Glock pistol in analogous circumstances as the Montville, CT incident where the officer while he attempted to assist another officer with restraining a suspect:

> "In December 1996 officers of our city's police force responded to a complaint of a domestic disturbance. After a period of time inside the residence one officer proceeded to arrest one male subject with the assistance of a second officer. The

[47] J.A. Yves Quevillon, The Key to a Mystery, AFTE Journal, Summer 1997, Volume 29, Number 3. Page 294

subject was lying on the floor in the living room face down and the arresting officer was straddling his shoulders, holding onto his wrists in preparation for the cuffing. The assisting officer was bending down to his right to help him. They brushed together as this was happening and there was the report of a gunshot."

Examination of the physical evidence in this shooting showed that tool marks existed on the subject holster, and trigger that were consistent with the keys attached to the duty belt of the officer being assisted. See Figure 7.3.2. A physical experiment was then conducted with an exemplar pistol and holster that showed the fully holstered exemplar Glock could be discharged via the keys in a manner that left equivalent tool marks on the exemplar holster and trigger. See Figure 7.3.3. Through evidence evaluation and the application of the scientific method via structured experimentation, the R.C.M Police Central Forensic Laboratory was able to establish the root cause of the discharge was the keys entering the holster and creating a mechanism by which the trigger could be pulled.



Subject Holster | Exemplar/Test Holster

Subject Trigger | Exemplar/Test Trigger

Figure 7.3.3: Comparison of Subject Evidence and Test Evidence

The experiment by the R.C.M Police Central Forensic Laboratory also proved that the bladed trigger safety of the Glock does not render the trigger of a Glock immune to being inadvertently actuated and discharged via a foreign object, as Plaintiff and his consultants have insinuated[48]. Therefore, experimentation conducted by the R.C.M. Police provides objective proof that any claim the Montville, CT police discharge would have been prevented by a Glock is without scientific foundation.

Placed Glock in an Appendix Holster | Bent Down and the Pistol Discharged | Jumped Up and Removed the Pistol

Figure 7.3.4: Security Video Images of [redacted] being Shot by a Holstered Glock 43

As a degreed mechanical engineer that has worked in the firearms industry as a firearms designer since 1995, and as a consulting firearms expert in litigation matters since 2009, I have worked with most of the larger firearms manufacturers, including Glock. To the extent the consultants for the Plaintiff may suggest Glocks or other pistols equipped with a trigger safety are not susceptible to discharging unintentionally in a holster, I have first-hand experience investigating instances of Glocks being discharged by a foreign object and while holstered. On August 21, 2019, I was asked to examine a Glock that was claimed by [redacted] to have discharged absent a trigger pull while fully holstered (not unlike Glasscock's claim). See Figure 7.3.4, above. I examined the pistol, holster and clothing and found physical evidence that demonstrated [redacted] undershirt was in the holster when [redacted] inserted the pistol. When [redacted] bent down, the shirt pulled the trigger of

[48] See Complaint at ¶¶ 18-20; see also Gatrost at ¶ 47 (describing a "trigger safety" as being "a small lever on the trigger itself that blocks the rearward travel of the trigger until it is depressed along with the trigger for the gun to fire (discharge)," and including it in a list of "External (Manual) Safeties" described as a "switch, lever or button, that, when engaged, prevents the trigger from being pulled or the firing mechanism from operating"), ¶¶ 48-50.

the loaded and holstered Glock, and the condition of the undershirt, holster and subject Glock clearly indicated what had happened in [redacted] shooting incident. [redacted] 9mm, Glock 43 had the factory partially cocked, long displacement trigger equipped with a bladed/tabbed trigger safety (mixed mode GLOCK SAFE ACTION SYSTEM), yet the trigger was pulled by a foreign object (the undershirt) while the pistol was holstered. Despite statements made by the consultants for the plaintiff[49], Glocks are also susceptible to unintended and negligent discharges that Mr. Glasscock claims the SIG P320 is susceptible. The fact is all firearms contain a susceptibility to unintended and negligent discharges.

Figure 7.3.5: Police Chief Shoots himself with a Glock

In another similar incident, Connersville Indiana Police Chief David Counceller experienced an unintended and negligent discharge while visiting a local gun store. After handling a displayed Glock firearm, he placed it back on the counter and drew his own issued Glock firearm to visually inspect it. Chief Counceller reholstered his Glock in an outside the waistband duty holster and then pulled up on his fleece jacket to adjust it. In pulling up on the jacket, the jacket drawstring actuated the trigger because it had been inadvertently introduced to the trigger guard when Chief Counceller reholstered his gun. See Figure 7.3.5. This occurred despite the fact that Chief Counceller's Glock utilized a partially cocked, long displacement trigger equipped with a bladed/tabbed trigger safety (mixed

[49] Gatrost Report at ¶¶ 47-50.

mode GLOCK SAFE ACTION SYSTEM). This is yet another clear example how human error, such as inattentiveness and/or lack of firearms safety practices, can lead to an inadvertent discharge. The discharge is considered unintentional as Chief Counceller did not actively seek to discharge the pistol. The discharge is considered negligent because Chief Counceller failed to keep the jacket's draw string out of the holster and the trigger guard of the Glock pistol. Chief Counceller ultimately admitted his negligence caused the discharge.[50]

Lastly, in another unintended discharge involving Glock pistols, [redacted] of North Carolina had placed two Glock 19 pistols in his waistband and the subsequent discharge struck him in the groin. The pistols had been placed in the front of the waistband in a "V" formation, with the muzzles of the pistol facing each other. When the first pistol discharge, the bullet struck the top of the muzzle of the second pistol and then ricocheted into his groin. I conducted the firearm exams in this matter and the evidence indicated the discharge was due to pistol alteration and a trigger actuation, the claim against Glock was subsequently dropped.

Figure 7.3.6: Trigger Actuation Caused by Pushing the Holster Against a Finger on the Trigger

As stated earlier, I have been working as a firearms expert in the product liability field for over 13 years and the majority of inadvertent discharge cases I have handled involve

[50] Tharp, Pam. Indiana police chief accidentally shoots self at gun shop. IndyStar. January 20, 2014. Available at: https://www.indystar.com/story/news/crime/2014/01/20/indiana-police-chief-accidentally-shoots-self-at-gun-shop/4666967/

firearms equipped with manual safeties. Manual safeties only work if they are engaged. If a firearm is in proper working condition, loaded, the trigger is pulled and the corresponding safeties (passive or manual) are disengaged, the pistol will – and should - discharge. Figure 7.3.6 shows an example of how a pistol can be inadvertently discharged because the pistol is fully loaded, the striker is in a cocked condition and the operator's finger is on the trigger as the pistol is being inserted into the holster. Because the finger is between the trigger and the holster, the act of pushing the pistol into the holster causes the holster to push against the finger, which in turn pushes against the trigger until the pistol discharges. No passive trigger safety is capable of preventing such a negligent discharge.

Note: In the original photo the strap is black in color. The strap has been highlighted red to help clarify its position through the trigger guard.

Figure 7.3.7: Actuation of a Trigger Equipped with a Trigger Safety, Caused by a foreign Object in the Holster

In times of stress, what people perceive and remember is not always a good representation of reality. Figure 7.3.7 shows how a law enforcement officer managed to shoot himself in the hand while inserting his Smith & Wesson M&P pistol into his off-duty holster when a tactical belt strap (highlighted in red) was caught between the trigger and the holster. The incident pistol was equipped with a trigger safety. The shooting took place at the Officer's

desk as he was transitioning off duty. Because the shooting took place in the station, the response was immediate, and the incident scene was very well documented with photos. I was asked to evaluate the pistol and verify its functionality. The incident officer claimed the pistol discharged absent a trigger pull. After the functionality of the pistol was verified, I was shown the incident scene photos and a detailed photo of the incident pistol inserted into the incident holster with a tactical strap in the trigger guard was present. I then recreated and demonstrated how the shooting occurred, given the incident photos. It was concluded and proven the pistol discharged due to a trigger pull and the incident officer's claim was dropped.

To the best of my knowledge all popular firearms platforms have had claims of unintended discharges levied against them. Despite these claims, and my many years of investigating such claims, I am unaware of Glock, Smith & Wesson, or SIG Sauer ever having a factory correct GXX, M&P or P320 pistol proven to discharge absent a trigger actuation. Furthermore, no evidence has ever been presented that shows one platform is more prone to accidental discharge than the other.

8. Clarifying Trigger Actions and the Physics of a Trigger Pull

The first commercially available repeating pistol was the revolver, which started to become common place in the latter half of the 1800s. These first revolvers were single action only, meaning the operator had to physically cock the pistol (pull back the hammer) before the revolver could be discharged by pulling the trigger. Simply pulling the trigger on a single action only firearm does nothing if the firearm is not already cocked. A few decades later the double action/single action revolver was invented. Double action revolvers were capable of cocking and releasing the hammer by simply pulling the trigger. In a firearm equipped with a double action trigger, each time the operator pulls the trigger the firearm is taken from a fully uncocked state to the fully cocked state and then discharged. The double action eliminated the need for the operator to manually cock the firearm (pull the hammer back) before pulling the trigger. Because the act of pulling the trigger in a double action is doing more work (cocking the hammer and releasing the hammer) than in a single action only trigger (releasing the hammer), the trigger pull of a double action is typically longer and heavier than in a single action firearm. Firearms equipped with double action/single action triggers allow the operator to manually cock the hammer (single action) or cock the firearm by simply pulling the trigger. Double action/single action revolvers replaced the single action only revolvers in popularity because they allowed the operator to discharge the firearm as fast as they could pull the trigger.

8.1 Hammer Fired vs. Striker Fired, More Similar than Different

Magazine-fed semi-automatic pistols started to become commercially available in the early 1900s, and quickly started to replace revolvers in popularity. The Colt manufactured M1911 was the first semi-automatic magazine-fed pistol adopted by the US Army (1911) and the first commercially successful pistol of its kind. These early magazine-fed semi-automatic firearms were single action only because the energy released by discharging the firearm was partially harnessed to cock the firearm for the next shot. As long as the firearm started in the cocked and loaded condition, the requirement for a double action trigger was not needed.

In the latter half of the 1900s, double action/single action magazine-fed semi-automatic pistols became commercially available and popular among law enforcement and military. In 1985 the Beretta M9 (double action/single action magazine-fed semi-automatic pistol) was adopted by the US military to replace the M1911. The double action mode of the M9 allowed the pistol to be discharged via a trigger pull from the decocked condition, while the single action only M1911 required the pistol to be cocked before the trigger could be pulled and pistol discharged.

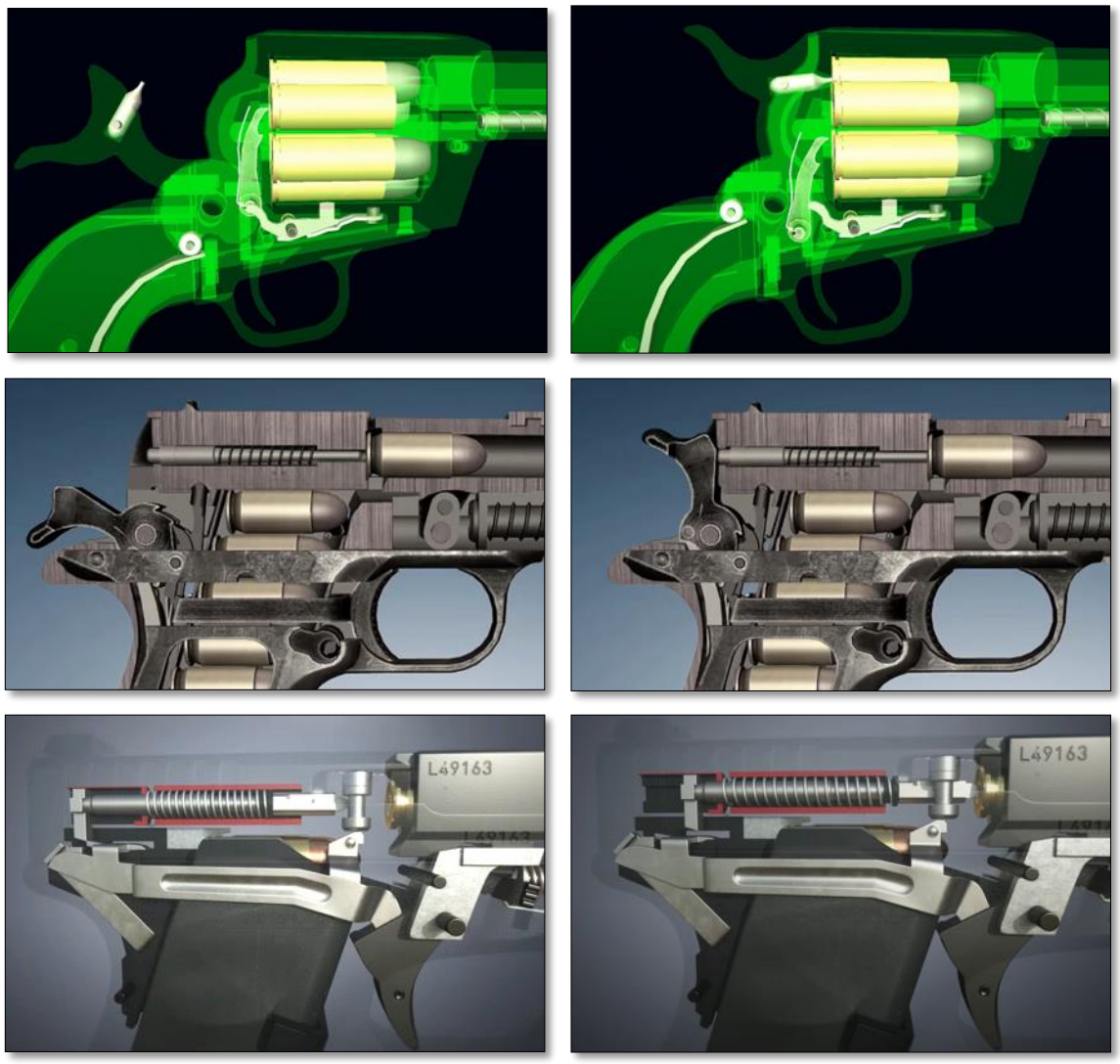


Figure 8.1.1: Comparison of Hammer and Striker Functionality

The early hammer fired handguns of the 1800s had the firing pin tip integrated into the hammer. The hammer was energized by a spring and when the trigger was pulled the hammer was propelled by the spring and the firing pin tip impacted the primer of the

chambered cartridge, initiating a discharge. See Figure 8.1.1. In the hammer fired semi-automatic pistols of the 1900's, the firing pin was detached from the hammer, allowing the hammer to impact the firing pin, which in turn impacts the primer of the chambered cartridge and initiates a discharge. This separation of the hammer and firing pin represented an increase in part count and design complexity. In the late 1900's, striker fire based semi-automatic handguns began to replace their hammer fired counter parts. In a striker fired handgun, the hammer is replaced with a "striker" that is energized by a spring and has the firing pin tip integrated into it. When the trigger is pulled on a striker fired pistol, the striker is propelled forward by the spring and the firing pin tip impacts the primer of the chambered cartridge, initiating a discharge. This design approach represented a reduction in part count and complexity to the primary discharge system, similar to the original firing pin tipped hammer systems. Firing pin tipped hammers and strikers are mechanical equivalents of each other. However, the firearm's action type, single or double action, is dictated by the fire control mechanism and not the discharge components. Striker fired pistols can single action (Glock GXX equipped with their performance trigger, Smith & Wesson M&P, and SIG Sauer P320) or double action (Walther P99, Canik VP9, and Taurus Millenium). Hammer fired pistols can be single action (SA revolvers, M1911, and FN Reflex) or double action (DA revolvers, Beretta M9, and SIG Sauer P226). Deducing the type of action is straight forward: with the pistol pointed in a safe direction, completely unloaded and fully cocked, pull the trigger multiple times. If the pistol attempts to discharge each time the trigger is pulled, the pistol is a double action, meaning the pistol is cocked and discharged with each actuation of the trigger. If the pistol only attepts to discharge on the first actuation of the trigger, the pistol is a single action, meaning the actuation of the trigger only serves to release the cocked hammer or striker.

8.2 Glock Pistols are not Double Action

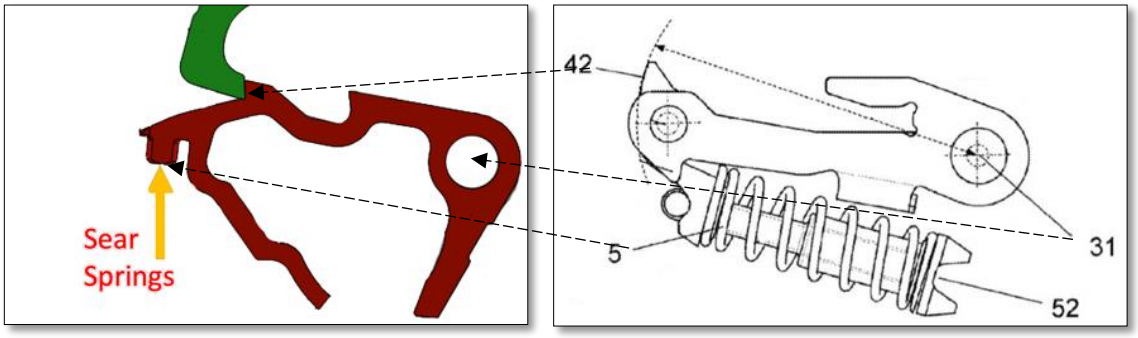
Because philosophies behind the use of firearms are constantly evolving, law enforcement agencies and militaries eventually started to transition away from double action/single action hammer-based pistols to striker fired semi-automatic pistols. In the 1980s Glock pistols were introduced to the US firearms market and began to be adopted by law

enforcement on a wide scale. By the late 1990's, Glock had been adopted by approximately 50% of the law enforcement market[51]. Beyond being striker based, many considered Glocks to be unique because their triggers were neither truly single action nor double action. When the slide of a Glock is cycled, it becomes partially cocked (not fully cocked like a single action). When the trigger is pulled, the act of pulling the trigger completes the cocking action and then discharges the chambered round of ammunition. If for some reason the chambered round does not discharge when the trigger is pulled (hard primer), pulling the trigger a second time will do nothing because the trigger cannot reenergize the striker (dead trigger), just as a true single action pistol would do under the same circumstances. Therefore, to the user, a Glock behaves as if it were a single action system. If the Glock was a true double action pistol, pulling the trigger a second time would re-cock the firing mechanism and a discharge would be attempted a second time. Because a Glock's trigger mechanism is neither a true single action nor a true double action, it is most accurately called a mixed form action, having the limitations of a single action with the increased trigger displacement required to discharge the firearm required by a double action trigger.

On March 5, 2024, Glock was granted patent US 11,920,882 B2, and the patent clearly defines single action, double action and mixed form (combination of single action and double action) trigger systems. Glock, within its own patent (a technical document and not marketing) defines the trigger systems it had been employing on its pistols as not being a true double action system: "Using the example of the widespread pistol models of the GLOCK® brand, a **mixed form system** has been established that is known as the SAFE ACTION system". Furthermore, the patent US 11,920,882 B2 protects Glocks novel approach for changing their mixed form trigger system to a true single action system: "Another particular advantage of the trigger assemblies of the present disclosure is that an

[51] Leen, Jeff and Horwitz, Sari. Armed and unready, city pays for failure to train officers with sophisticated weapon. Washington Post. November 18, 1998. Available at: https://www.washingtonpost.com/wp-srv/local/longterm/dcpolice/deadlyforce/police4full.htm

SA [single action] system, which has a "dry" trigger characteristic with a relatively short trigger path and/or trigger weight, can be realized by means of the interaction of the components". Essentially, patent US 11,920,882 B2 outlines how Glock designed a new trigger mechanism that allows a Glock to function like a SIG P320.



SIG Sauer's P320 Sear Glock's New Sear Assembly

Figure 8.2.1: Comparison of Glock's New Sear Assembly to the P320 Sear

Figure 8.2 shows and compares the new Glock single action sear assembly, disclosed in Figure 8A of patent US 11,920,882 B2, to the single action sear utilized in the Plaintiff's SIG P320 pistol. The new Glock single action sear rotates about a pivot (31), as does the P320 sear. Both sear designs have a striker engagement surface (42) which serves to restrain the striker (part shown in green) in the cocked position until the trigger is pulled. When the trigger is pulled, both sears rotate in a counterclockwise direction (relative to Figure 8.2.1) until the sear's engagement surface rotates below the striker and allows the striker to travel forward (to the right in Figure 8.2.1) and discharge the firearm by striking the primer of the chambered round of ammunition. When the pistol cycles due to the discharge, the sear is pushed back up and reset by sear springs (5) in both systems. Therefore, Glock's new single action trigger mechanism functions in the same manner as the trigger mechanism utilized in the SIG P320, further indicating the act of having a striker pre-cocked is not inherently unsafe. Glock brought the trigger mechanism disclosed in patent US 11,920,882 B2 to market in 2023, in the form GLOCK Performance Trigger®[52].

[52] Glock advertises its GLOCK Performance Trigger® as "perfect for those seeking an enhanced trigger pull and superior ergonomics." See https://us.glock.com/en/LEARN/GLOCK-Pistols/performance-trigger. For a 9mm model Glock (the same caliber as Plaintiff's P320), Glock advertises that the GLOCK Performance Trigger® has a "Trigger Pull Weight: ~ 5lbs." See https://store.glock.us/glock-performance-trigger-9mm.

The GLOCK Performance Trigger® can be retrofitted in many previous models of Glock pistols[53].

When Glocks pistols were introduced to the firearms market in the early 1980s, no other mass-produced pistols in the United States had a trigger mechanism like them. I am not stating the design of the original Glock trigger system was good or bad, it was just considered unique in the firearms industry at the time. Now with the introduction of the GLOCK Performance Trigger® system, it appears Glock is allowing consumers to exercise their philosophy of use and giving them a choice between the original mixed mode action and the new more traditional feeling fully cocked single action that emulates the SIG P320's trigger. Interestingly, during the first 10 years of the Washington DC Police department's adoption of Glock 9mm pistols[54], they accumulated a record of 120 accidental discharges with the Glocks, despite being a mixed mode action system. As was found in the LA County transition to Smith & Wesson pistols, a lack of training was identified as the root cause for the increase in accidental shootings among the Washington DC officers. The experiences of the Washington DC Police and the LA County Sherriff's office teach us that inadvertent discharges occur regardless of make or model or features of a firearm due to human error.

8.3 Trigger Performance Data Based Comparisons

As discussed previously, Mr. Gatrost has opined the SIG Sauer P320 pistol platform is defective because of its trigger pull characteristics: "the P320 has a very light and short trigger pull, thereby lacking the additional passive safety other handguns have by virtue of a heavier or longer trigger pull"[55]. However, neither Mr. Gatrost or Mr. Biller ever define the pass/fail standards they use to judge the weight and length of pull of a pistol's trigger as defective. Evidently it is solely up to them to divine between what is defective and acceptable. Both Glock and Smith & Wesson manufacture variants of their GXX and M&P

[53] G26 (Gen4/Gen5), G19 (Gen4/Gen5), G17 (Gen4/Gen5), G34 (Gen4/Gen5), G19X, G45, G47, and G17L (Gen5 MOS)

[54] Leen, Jeff and Horwitz, Sari. Armed and unready, city pays for failure to train officers with sophisticated weapon. Washington Post. November 18, 1998. Available at: https://www.washingtonpost.com/wp-srv/local/longterm/dcpolice/deadlyforce/police4full.htm

[55] Gatrost Report at ¶ 66.

striker fired pistols with trigger pulls advertised as low as 4.1 pounds[56]. SIG Sauer advertises the trigger pull for its entire line of P320 pistols to be between 5 and 7 pounds[57]. Therefore, if Mr. Gatrost and Mr. Biller judge the SIG Sauer P320's trigger pull to be defectively light, shouldn't the trigger pull of the Glock and Smith & Wesson pistols be considered defectively light since they offer trigger pull weights equal to or less then the SIG Sauer P320? As a point of reference, the Sporting Arms and Ammunition Manufacturer's Institute (SAAMI) defines the minimum acceptable trigger pull on a handgun, that is not intended for competition/target use, as 3 pounds[58].

As stated earlier, the New York law enforcement study showed heavy trigger pulls do not equate to safer trigger pulls or less inadvertent discharges and the NYPD has transitioned their officers to Glocks equipped with significantly lighter 5.5-pound trigger pulls. This trigger pull weight is lighter than many standard P320 pistols, including Plaintiff's P320 model which has an advertised trigger pull weight of 6.5 pounds[59].

Figure 8.3.1: SIG P320 Mounted in a Dvorak

To aid in comparing and contrasting the trigger mechanism of a SIG Sauer P320 pistols to other magazine-fed mixed mode and single action striker fired pistols, a Dvorak TriggerScan fixture was employed. See Figure 8.3.1. When the pistol is mounted in the

[56] Glock advertises its GLOCK Performance Trigger® as having a trigger pull configurable between 4.1 pounds and 7.2 pounds. https://eu.glock.com/en/Products/GLOCK-Options/Performance-Trigger

[57] Declaration of Matthew Taylor dated March 7th, 2025 at ¶ 7.

[58] American National Standard SAAMI Z299.5-2016, page 1.

[59] SIG-MARKETING000213.

Dvorak, the fixture pulls the trigger and measures the force vs displacement of the trigger. Dvorak fixtures are capable of very precise measurements and are commonly used in trigger mechanism design.

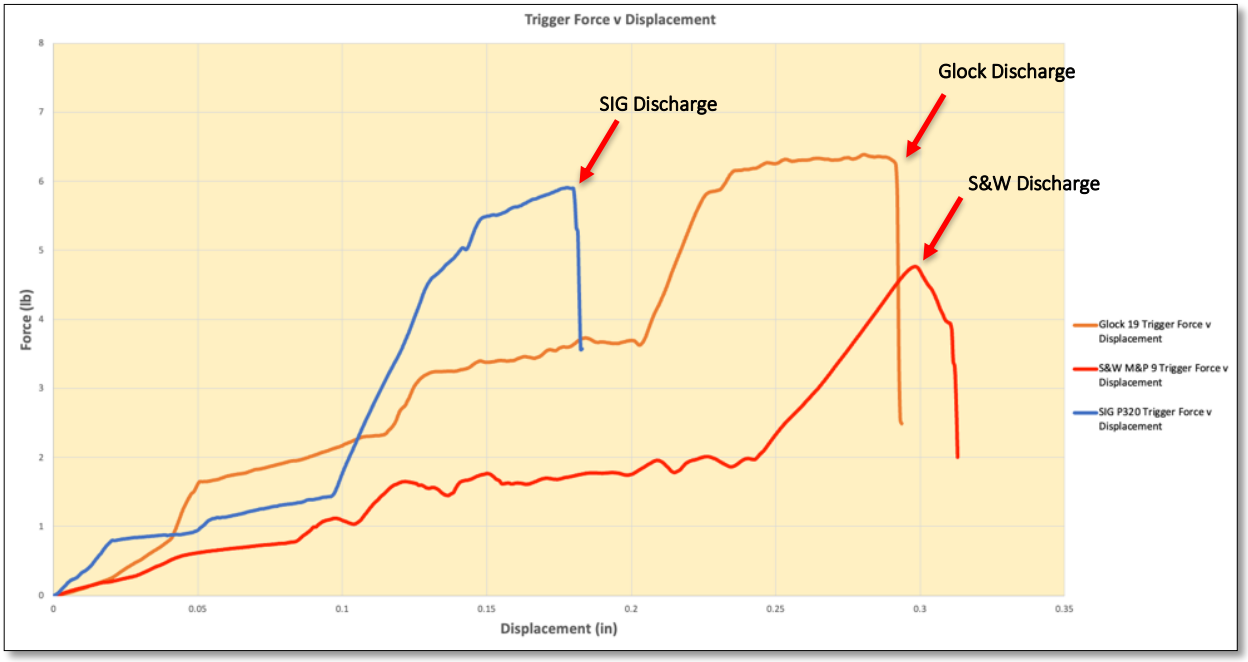


Figure 8.3.2: Trigger Scans for Glock, S&W and SIG Sauer Pistols

A Glock 19 Gen 4, a Smith & Wesson M&P 9 (gen 1) and a SIG Sauer P320 (post 2017 upgrade with a curved trigger) were evaluated using the Dvorak TriggerScan fixture. For consistency and a fair comparison between the trigger mechanisms, the trigger probe contacted and pulled each trigger in the middle of the trigger's bow (per Sporting Arms and Ammunition Manufacturers Institute standards). Figure 8.3.2 shows a side-by-side comparison of the resulting trigger scans. The Smith & Wesson M&P 9 had the lightest trigger pull, 4.8 pounds, because it was the commercially available pro/competition version of the M&P 9, meaning it had a lighter trigger pull spring set in it. I did not have access to a standard law enforcement model of the M&P 9, which reportedly has a 6.5-pound trigger pull spring kit in it. The Glock and SIG pistol had very similar trigger pull weights at 6.3 and 5.9 pounds, respectively. See Figure 8.3.3.

	SIG P320	Glock 19	Smith & Wesson M&P 9
Trigger Pull (lb)	≈ 5.9	≈ 6.3	≈ 4.8
Trigger Displacement at Discharge (in)	≈ 0.180	≈ 0.292	≈ 0.299

Figure 8.3.3: Trigger Pull Data

Unlike trigger pull weight, no firearms industry standard exists for minimum or maximum allowable trigger displacement. Handgun trigger displacement is the product of the hard mechanics of the fire control mechanism and not an aspect that is typically dialed in with springs. The US Military's first magazine fed semi-automatic pistol, the M1911, had a trigger displacement of approximately 0.07 inches. But the consultants for the plaintiff seem to opine the 0.180 inch trigger displacement of the M17, a variant of the SIG Sauer P320 and the US Military's current magazine fed semi-automatic pistol, is too short[60], even though it is over 250% greater than the trigger displacement of the M1911.

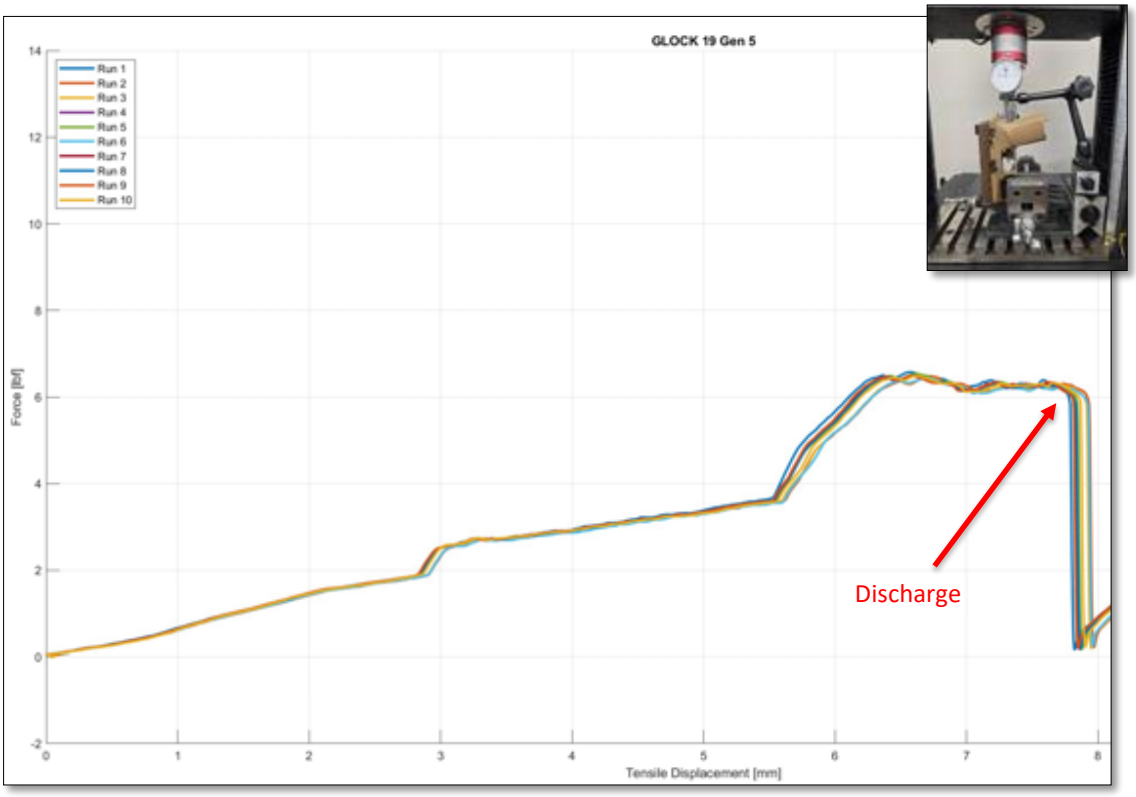


Figure 8.3.4: Instron based Trigger Actuation Force vs Displacement Graph

As previously stated, Nth-Level's metrology lab is equipped with an industry standard Dvorak Triggerscan system that is specifically built to measure trigger actuation force and displacement. SIG Sauer uses an Instron to generate their trigger actuation force vs. trigger displacement curves. Instron manufactures one of the best systems that can be purchased for this type of measurement. These two systems are the generally accepted techniques

[60] Gatrost Report. Page 31

used in the relevant scientific communities. While the measurements between my Dvorak and SIG Sauer's Instron have matched thus far, to facilitate a larger perspective with respect to trigger force, displacement, and work, the SIG Sauer lab is in the process of building a trigger database for competitor pistols, utilizing their Instron. Currently 18 products have been measured. Figure 8.3.4 shows a properly measured trigger actuation force vs. trigger displacement for a Glock 19 Gen 5 pistol. A load cell records the forces applied to the trigger and an encoder records the displacements. The traces were run ten times and the chart shows the pistol's performance was reasonably repeatable, establishing a high confidence in the measurement technique.

The debate among shooters about long trigger displacement versus short trigger displacement is primarily about accuracy of the shot (i.e. the shooter being able to hit the target). It is challenging for the human body to pull the trigger of a firearm in a straight line. Pulling the trigger with a slight bias to the left on the trigger will cause the shots to spread left of the target. Pulling the trigger with a slight bias to the right will cause the shots to spread right of the target. The argument is, the shorter the displacement of the trigger, the less opportunity there is to bias the trigger left or right, allowing the shooter to be more accurate. Conceptually, short and long displacement triggers can be equally functional approaches to controlling the discharge of a firearm. For some operators a short displacement trigger will serve them best and for others a long displacement trigger is a better choice, while for many either system will serve equally well. This goes back to the physicality of the operator and their philosophy of use. And as the New York law enforcement study showed, missing the target is a hazard to everyone and everything around the target, including the operator. The SIG Sauer P320 takes approximately 38% less trigger displacement to discharge than the Glock 19 Gen 4.

Biomechanically, the human body is not equipped with encoders or transducers to provide a sense of displacement when pushing on an object. Our bodies are equipped with muscles which pull our skeleton through various positions. In the field of trigger design, it has been shown that as long as the finger has to exert a continually increasing, and steadily increasing force on a trigger to move it, the perception of displacement is minimized by the operator. When a trigger is being pulled, the operator can easily distinguish bumps

and dwells in the force required to displace the trigger. Looking at the trigger displacement curves in Figure 7.4, the SIG Sauer and Smith and Wesson trigger curves have a relatively steady buildup in force until approximately 2 pounds and then the force required to further displace the trigger starts to climb significantly, but in a very consistent manner, with the discharge occurring at a peak in the pull force. The smoother the force increases to a peak before the break/discharge, the crisper the perceived trigger pull. The Glock trigger displacement curve has four distinct sections of pull, with a dwell/plateau before the break/discharge. This plateau before the discharge is the biggest contributor to why some people dislike the standard Glock trigger and don't think it is crisp. For others, the Glock trigger is perfectly good. The fundamental issue is not the length of the trigger's displacement (0.070 vs 0.180 vs 0.290 inches), the issue is given the 27 bones in the human hand that are connected by 30 muscles and the operator's ability to control the contraction of the muscles and not bias the trigger right or left and possibly causing a missed shot.

The M&P 9 has a longer trigger displacement curve than the Glock, yet the Los Angeles County Sheriff's Department has documented multiple unintended discharges with the M&P 9. This provides empirical field data that large trigger displacements will not prevent unintended discharges when the trigger is pulled. The M&P 9, like the Glock, is also equipped with a passive tabbed trigger safety, yet unintended discharges still occurred with both types of firearms. The empirical field data confirms that a trigger safety will not prevent unintended discharges when the trigger is pulled[61].

People often fixate on a trigger's pull weight or its displacement, yet they are only looking at half of the equation. If you multiply the force by the distance, you get the work that is required to operate a trigger. While I was working as an engineer at Remington Arms, we developed a purely electric fire control and ammunition ignition system. With this system we could achieve a near zero displacement trigger system. To demonstrate the benefits of the system we would have groups of shooters discharge normal mechanical firearms

[61] Katz, Walter W, Assessing the Rise in Unintended Discharges Following the Sheriff's Department's Conversion to a New Handgun, Office of Inspector General County of Los Angeles (Dec. 2015).

and then the same model of firearm equipped with the electric fire control. Each time a group moved to the electric fire control system, their accuracy scores improved. The operational energy of a trigger is represented by the area under a Dvorak trigger displacement curve. The less work exerted to operate your trigger the more accurate you can be[62]. As this has to do with accuracy, and not avoidance of inadvertent discharge, this is why no standard exists for minimum trigger work requirements in firearms and the amount of work the trigger of each firearm performs can vary greatly. See Figure 8.3.5. Are the Glock 19 or SIG P320 pistol platforms defective because other pistols exist with greater trigger work requirements? No, they are not. Firearms are built with a peak trigger pull force specifications in mind not total trigger displacement.

Firearm	Total Trigger Work (in*lb)
S&W Air Weight (Revolver Double Action)	4.156
Beretta 92x (Double Action)	4.183
Glock 19	0.907

Figure 8.3.5: Trigger Work Comparison

With respect to the work a trigger must do to discharge a firearm, the introduction of the Glock Performance Trigger by Glock has significantly undermined the claim being made by plaintiff consultants that trigger work is safety related[63]. Because the Glock Performance Trigger is nearly 100% cocked, the trigger actuation force vs displacement for the performance trigger is significantly different than the standard Glock trigger. Figure 8.3.6 shows the trigger force vs. displacement curve for a performance trigger (orange) overlaid against a standard Glock Gen 4 trigger force vs. displacement curve. The area under the curves represents the work that must be exerted by the operator's finger to discharge each trigger mechanism. On average, the performance trigger took approximately 26% less work to discharge than the standard Glock trigger[64]. Does this mean Glock cares less about the safety of its customers who shoot their new Performance trigger because it requires less trigger work? The answer to the question is, "No", because firearm safety is proven

[62] Gunwerks, Killing Creep. https://www.gunwerks.com/blog/lrp-blog-2/killing-creep-24
[63] Gatrost Report at ¶ 49.
[64] The force, displacement and work measurements were measured via a Dvorak fixture and repeatedly replacing the fire control in a single Glock pistol. Thereby minimizing the affecting variables by keeping the grip, slide, barrel, locking block, and striker system constant throughout the test.

by subjecting the firearm to real work industry standard abuse tests and not an arbitrary trigger work criteria that is undefined and unsubstantiated by plaintiff consultants.

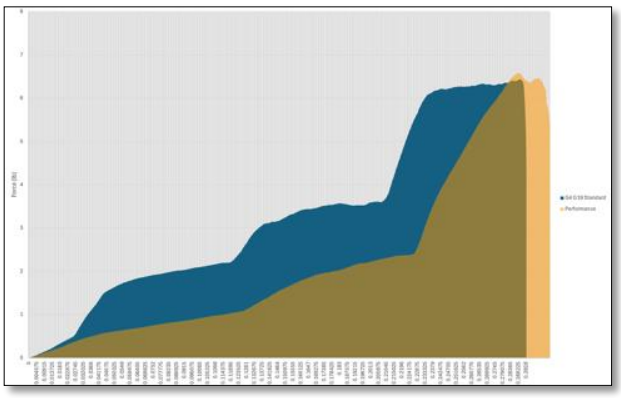


Figure 8.3.6: Glock's Standard Trigger vs. Performance Trigger Work Comparison

In the past consultants for the plaintiff have been unclear in their representation of how the SIG Sauer P320s, Glocks, Kahr Arms, Walther, Smith & Wesson and other firearms are classified and operate, despite the NIJ giving striker fired pistols their own action classification, "striker action". The consultants for the plaintiff have even gone as far as to falsely claim the SIG Sauer P320 is the only single action striker fired pistol sold today that is not equipped with an external safety[65], even though SIG Sauer, Kahr Arms, and SCCY Firearms[66] all produce striker fired pistols equipped without external passive tabbed trigger safeties, but are equipped with external passive trigger system safeties, without the tab, just like the P320. To this end multiple videos of how relevant firearms function and how they are classified have been created. It is my intent to use said videos as support for any testimony I may offer.

Lastly, in addition to the aforementioned videos, a collection of patents that outline the design intent of the tabbed trigger safety systems from their inception in the late 1800's to most recent current day patents have been assembled to discern marketing hype from engineering fact. The varied array of trigger safety designs available in the firearms market all have one function in common, to prevent trigger actuation due to impact/shock (i.e.

[65] Gatrost Report at ¶ 65

[66] Using the Plaintiff's definition for external safety, which is incorrect, the SIG Sauer P365; Kahr Arms X, P, PM, CT, CW, CM, K and KM series; and SCCY DG1 are sold without a manual thumb safety or a tabbed trigger safety, just like the SIG Sauer P320. See SCCY, DVG-1 Model Pistol, https://sccy.com/firearm/dvg-1/; See Kahr Arms, CT Series Pistols, https://www.kahr.com/c-series-handguns/; See SIG Sauer, P365 Series of Pistols, https://www.sigsauer.com/firearms/pistols/p365.html

drop safety). Resistance to shock/impact is a function SIG P320 triggers accomplish without the addition of a bladed trigger safety because the inertial impulses of the trigger and trigger bar were designed out via balancing the trigger system, i.e. they designed out the hazard with a trigger system safety rather than guarded against it with a trigger safety.

A list of the abuse tests the SIG P320 has been put through over the years has been assembled and the philosophies behind those tests have been clarified. The plaintiff's consultants opine the SIG Sauer P320 platform is defective but can cite no standard by which it has been proven to be defective[67]. The recognized consumer industry abuse standard for firearms is put forth by SAAMI. SAAMI provides standards for the purposed of providing "procedures for evaluating new firearms designs and applies to rifles, shotguns, pistols and revolvers. In the interest of safety, these tests are structured to demonstrate to the designer of new firearms that the product will resist abusive mishandling"[68]. Similarly, the recognized law enforcement abuse standard for firearms is the NIJ (National Institute of Justice). When Mr. Glasscock's SIG Sauer P320 pistol was manufactured (February, 2018)[69] it met and/or exceeded all the performance standards set forth by SAAMI and the NIJ as did all other P320s sold during the Putative Class Period.

The reality is Glock, Smith & Wesson and SIG Sauer all take very different approaches to the design of their trigger mechanisms, but in the end, all meet the same functional requirements and safety requirements. The Glock 19 Gen 4, Smith & Wesson M&P 9 and the SIG Sauer P320 are all safe, reliable, and accurate pistols. I personally own and am equally comfortable shooting each of these pistols, which do not contain external thumb safeties, but the undeniable fact remains that when competing against each other, the US Army chose the SIG Sauer P320 as its standard issue sidearm in 2017.

[67] Gatrost Report at ¶ 65

[68] American National Standard, SAAMI Z299.5-2023, Voluntary Industry Performance Standards Criteria for Evaluation of New Firearms Designs Under Conditions of Abusive Mishandling for the Use of Commercial Manufacturers, page 3, saami.org

[69] Declaration of Lano. ¶ 8

9. Factors Beyond Trigger Design in Preventing Unintentional Discharges

The Plaintiff claims holstered SIG P320 pistols have a greater propensity for discharging than other pistols[70], while the consultants for the Plaintiff omit from their reports that holster designs can vary significantly not only from manufacturer to manufacturer, but also between firearm models within the same manufacturer's product line. Figure 9.1 shows two Blackhawk Serpa CQC holster, one for the SIG P320 and the other for the Glock 17. Despite the two holsters being manufactured by the same company and the same model line, the trigger of the SIG P320 is exposed, while the trigger for the Glock is sealed off.

Figure 9.1: Comparison to SIG Sauer P320 and Glock Versions of the Same Holster

To determine in a scientific manner if any one object in a group will perform better than, equal to or worse than the other object(s), the objects must be tested in the same manner and exposed to the same stimuli and limitations. If one is attempting to assess if a pistol's trigger design is any more or less likely to be actuated by a foreign object when holstered,

[70] Deposition of Mr. Glasscock, dated March 6, 2025 at pages 60 and 110.

the holster's need to be equivalent, or the resulting data will be conflated by the holster design and the trigger design. Figure 9.1 shows an exemplar P320 pistol and holster on the left, with a Glock in a holster by the same manufacturer on the right. Despite the holsters being by the same manufacturer and designed for their respective model pistol, the holsters are completely different with respect to the access granted to the trigger when the pistols are fully holstered. The trigger area of the P320 holster is open and funnel shaped. The holster for the Glock completely closes off the trigger area and makes it practically impossible to get anything into the holster. The fundamental differences in the holster designs makes it impossible to assess anything about the designs of the triggers.

The purpose of scientific testing is to conclude an answer to a question that is both repeatable in sequential testing and reproducible by other around the world. With respect to an unintended discharge being initiated by a foreign object actuating the trigger while the pistol's is fully holster, the designs of the holsters presented in Figure 9.1 are far more significant variable than the designs of the triggers. The Plaintiff nor his consultants appear to have employed the scientific method in any form when concluding their opinions of defect. A consistent theme of constructed illusion runs through the plaintiffs' consultants' reports. At no point in time does either consultant reference an established standard by which to assess any of their claimed defects. To justify their claims of defect they employ no metric by which any other person can test and quantify a defect, they only cite inconsequential differences.

10. FMEA & FMECA

Failure Mode(s) and Effects Analysis (FMEA) is a design aid that facilitates reviewing components, assemblies, and subsystems to identify potential failure modes in a system and their causes and effects. Historically, the FMEA process was formalized in the 1940s and 1950s, and is now a design and evaluation tool in the Six Sigma (6σ)[71] toolbox. I attained an advanced certification in Six Sigma during my eleven-year tenure at General Electric. I have participated in and lead many FMEAs in my career. I have also taught multiple classes in FMEA.

Over the years, approaches to FMEA have evolved. Typically, FMEAs are used as a tabletop exercise started at the beginning of a program to help identify program risks and where to allocate resources when addressing said risks in the design(s). FMEAs can also be living documents that are updated as a program progresses. Fundamentally, potential failure modes are identified in a design or product, the potential root causes for said failure modes are then listed, and then each potential root cause is given a score with respect to the probability of the root cause occurring and the severity of the failure mode. The scores are then used to assign a level of "risk" to the potential root cause(s) of each failure mode. With the levels of risk identified, resources can be more efficiently assigned to abate the risks in an orderly fashion.

[redacted]

[71] Six Sigma strategies seek to improve manufacturing quality by identifying and removing the causes of defects and minimizing variability in manufacturing and business processes. This is done by using empirical and statistical quality management methods. Each Six Sigma project follows a defined methodology and quantifiable evaluation process. Six Sigma is a data-based decision-making process.

[72] Class Cert. Mot. at ¶ 45-46; Biller Report at pp. 17-18, 20-21.

[redacted]

FMECA (Failure Modes, Effects and Criticality Analysis) is an "extension" of FMEA, in which the scoring is used to rank the possible root causes of failures via risk, facilitating the ability to focus on the critical design challenges in an orderly fashion. The line between an FMEA and FMECA can be blurred as the purpose of a FMEA is to identify potential failure modes and assign recourses to eliminate or reduce their potential root causes in an efficient manner, i.e. based on the severity of their risk/"criticality". Therefore, to some the difference between FMECA and FMEA may seem like an unnecessary and/or confusing distinction and as a compromise, many have adopted the nomenclature FME(C)A. For the purposes of clarity, I will refer to the risk assessment process utilized by SIG Sauer in conjunction with the Modular Handgun Solicitation (MHS) as FMECA, as that is what the military named their process.

[redacted]

[redacted]

[73] [redacted]

[redacted]

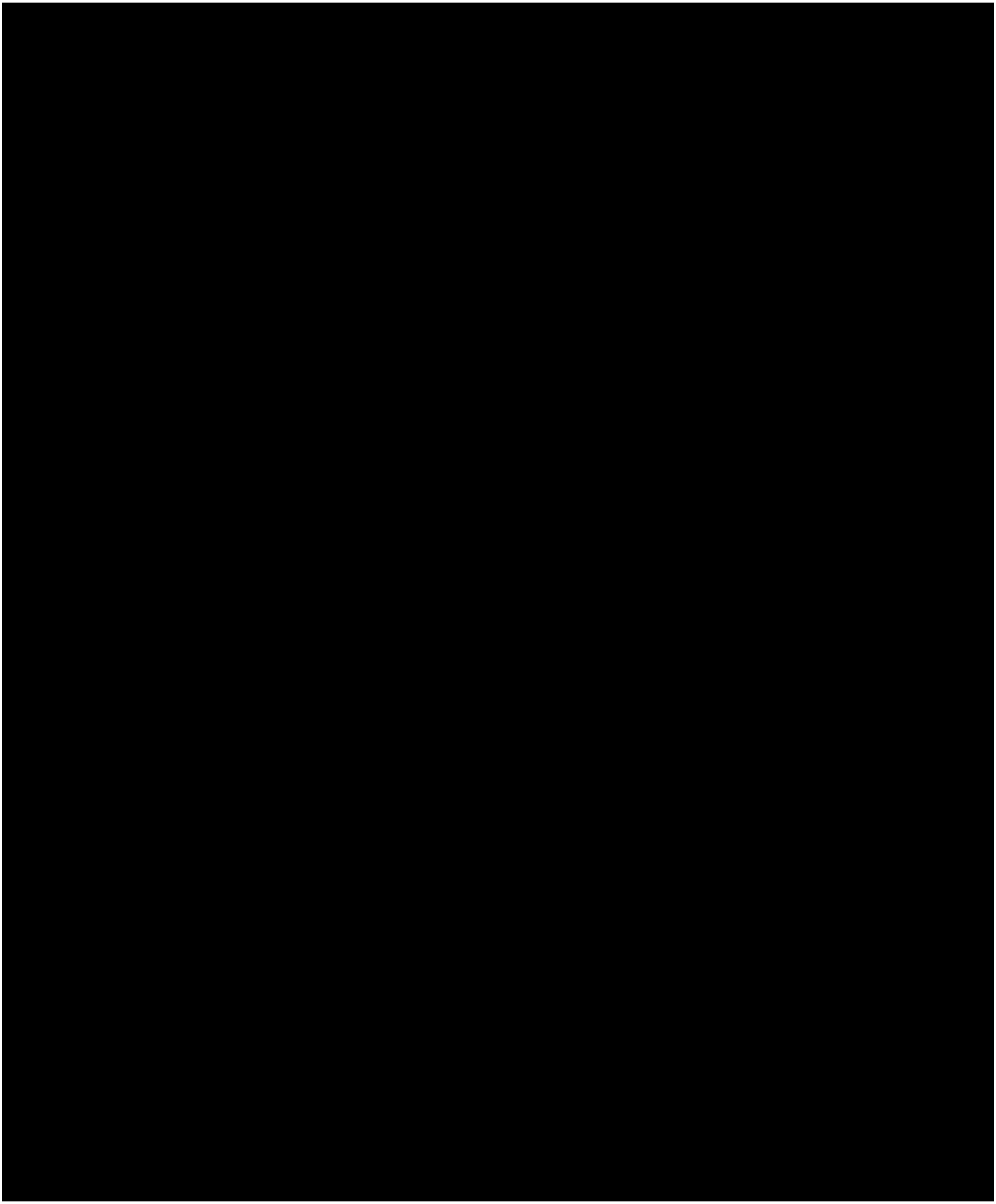
[redacted]

[74] Dr. Eric Warren is a forensic expert with SEP Forensic Consultants, LLC. He received his Bachelor of Science degree in Molecular and Cellular Biology with a minor in Chemistry from Vanderbilt University. He received his Doctorate in Biological Sciences with an emphasis in Biochemistry and Molecular Biophysics from Vanderbilt University. His research has focused on the influence of external factors (magnetic fields, thermal effects, X-ray radiation, etc.) on the internal biochemical processes of the human body. He has been involved in scientific study design, testing, and experimentation for approximately 20 years.

Dr. Warren then transitioned to the field of forensic science where he was trained at the Tennessee Bureau of Investigation (TBI) and served for several years as a Special Agent/Forensic Scientist assigned to the Firearms Identification Unit.

Dr. Warren continued his research while at the TBI, shifting to topics in Forensic Science, where he has published several peer-reviewed articles in the Association of Firearm and Tool mark Examiners (AFTE) Journal, the Journal of Forensic Sciences, the Arab Journal of Forensic Sciences & Forensic Medicine, and Forensic Science International. He is a Distinguished Member of AFTE where he has served in numerous capacities, including his current positions as an Assistant Editor for the AFTE Journal and Board Member. He also is called upon as a peer reviewer for the AFTE Journal and other forensic journals. Previously he served as the Chair of the Unpublished Research Subcommittee and member of the Electronic Resource Committee. He regularly presents and give talks on the subject of firearms identification at the AFTE annual training seminar, and is certified in firearm evidence examination and identification by AFTE. He is also a Member of the International Ammunition Association, the Organization of Scientific Area Committees (OSAC) Firearms and Toolmarks Subcommittee, the Association of Crime Scene Reconstruction, the International Ballistics Society, the American Academy of Forensic Science, a Life Member of the National Rifle Association (NRA), and a safety advisor for the National Shooting Sports Foundation (NSSF) Shooting Hunting and Outdoor Trade (SHOT) Show.

I performed the comparative FMEA shown in Figure 10.3 with Dr. Warren because FMEA analyses are a collaborative process requiring more than one person.



[redacted]

11. Pistol Inspection and Testing

On November 26, 2024, I examined Mr. Glasscock's P320 pistol in Springfield, Missouri. The condition of the pistol was assessed non-destructively with photography, function-testing and physical measurements. The entirety of the physical examination was video recorded.

11.1. External Inspection of the Pistol

The pistol was initially verified to be unloaded and clear of ammunition. The pistol was observed to be in a well-used condition. No overt signs of alteration, abuse or damage were observed

11.2. Physical Testing of the Pistol

Function Testing	Pass	Fail
Magazine Catch	✓	
Slide Catch	✓	
Magazine Release	✓	
Slide Release	✓	
Trigger Function	✓	
Disconnector Function	✓	
Firing Pin/Striker Function	✓	
Striker Block Function	✓	
Slide Gap (Exercised a minimum of 100 times)	✓	
Striker Block Function (dynamic)	✓	
Slide to FCU Twist/Sever Angle Test	✓	
Safety Lever Return Function	✓	
Trigger Pull Actuation Force Testing	✓	

Figure 11.2.1: Summary of the Function Tests Performed on the P320 Pistol.

After the CT scan was completed, the subject pistol was function tested. The purpose of function testing is to verify if the components of the pistol are interacting properly and determine if any claimed defects can be substantiated. Figure 11.2.1 documents each function test that was performed. The function tests were performed a minimum of five times before any disassembly of the pistol. The pistol passed all the function tests. Despite being subjected to the full battery of function testing the pistol was never made to discharge absent a trigger pull.

Trigger Pull Measurements (pounds)	
No Discharge	**Discharge**
6.50	6.75
6.25	6.50
6.25	6.50
6.25	6.50
6.25	6.50

Figure 11.2.2: Trigger Pull Force Measurements

NRA hanging weights were employed to measure the force required to pull the pistol's trigger and discharge the firearm. The NRA weights use gravity to center the gauge on the trigger and to apply the actuation force. Five trigger pull forces were measured with an average trigger pull force of 6.425 pounds. See Figure 11.2.2. The measured trigger pulls are well above the Sporting Arms and Ammunition Manufacturer's Institute's (SAAMI) recommended 3lb minimum[75]. The National Institute of Justice (NIJ) defines the acceptable trigger pull force to be between 3 and 8 pounds for single action pistols, such as the SIG P320[76].

To dynamically test the functionality of the striker block, the slide was removed from the pistol and a dummy round containing a clay primer was loaded into the chamber of the pistol. The striker was then fully retracted and released multiple times with and without the striker safety lock being depressed. If the striker safety lock ever failed to block the motion of the striker, the firing pin tip of the striker could have made contact with the clay and made an indent. The only way the pistol's striker was made to contact the clay primer was to depress the striker safety lock and release the striker from the cocked position, as the pistol was designed and intended to function.

The slide gap test was run to verify relative motion between the slide and the fire control could not cause an uncommanded discharge. The slide gap test consists of cocking the pistol and then pulling the slide away from the fire control unit and pressing it back down on the fire control unit. One pull and one push constitute one cycle of the test. The subject

[75] American National Standard, SAAMI Z299.5-2023, Voluntary Industry Performance Standards Criteria for Evaluation of New Firearms Designs Under Conditions of Abusive Mishandling for the Use of Commercial Manufacturers, page 3, saami.org

[76] NIJ Standard-0112.03, National Institute of Justice Law Enforcement and Corrections Standards and Testing Program, Autoloading Pistols for Police Officers, Page 6, Section 4.5.3.

pistol was tested a minimum of 100 times with no failures, disproving the theory that slide motion relative to the fire control can induce a discharge absent a trigger pull.

A slide twist/extreme angle test was also conducted. The slide was gripped in one hand while the grip module was held in the other hand. The slide was then twisted from side to side as hard as I could without damaging the pistol in an attempt to cause angular motion between the striker and sear and induce an uncommanded discharge, which is a physical impossibility but has been opined as a defect in the past by consultants for other plaintiffs. The subject pistol did not discharge during the slide twist/extreme angle test.

During the function testing and throughout the examination, the pistol could only be made to discharge when the pistol was cocked, and the trigger was fully pulled. The pistol never discharged absent a trigger pull.

11.3. Disassembly and Inspection

When the function testing and trigger pull measurements had been completed, the inspection of the internal components was started. Removal of the slide cap allowed for visual review of the striker and sear engagement. The sear was verified to be pressing up against the striker foot, creating a maximum engagement condition. A significant amount of field debris was observed in the engagement area, indicating the pistol needed its instructed maintenance. An odd linear mark was observed across the back of the striker foot. See the red arrow in Figure 11.3.1. It appeared as if someone had been trying to force the pistol to discharge with a screwdriver. The marking was only cosmetic and did not alter the functionality of the sear or striker.

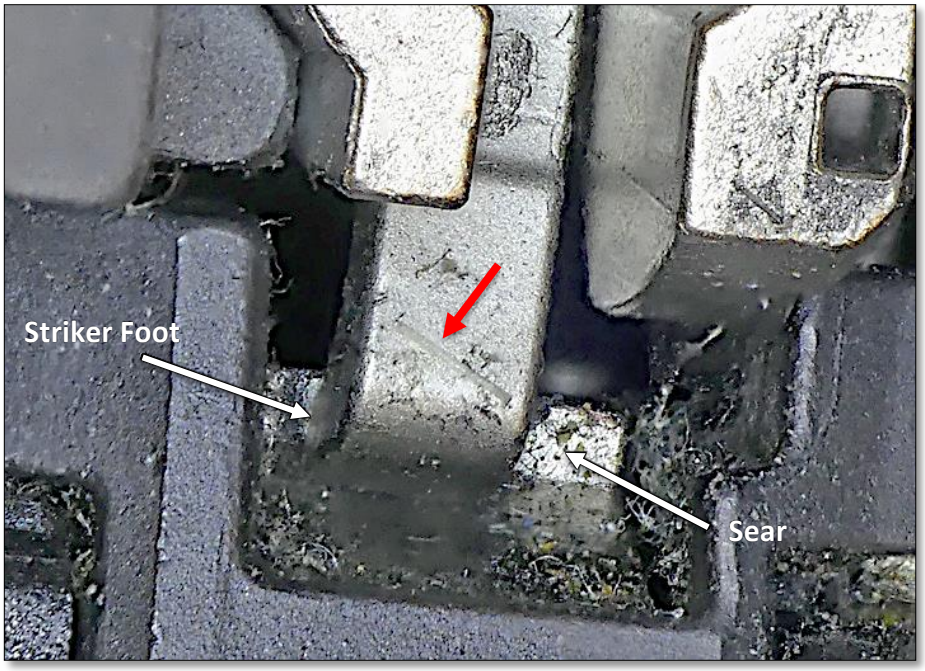


Figure 11.3.1.: Engagement Between the Striker Foot and the Sear

The pistol's Fire Control Unit (FCU) was heavily coated with lubricant. The fire control also had heavy deposits of what appeared to be gunshot residue mixed with lubricant concentrated around the trigger area. See Figure 11.3.2 and 11.3.3. It was apparent Mr. Glasscock had not been following the recommended cleaning processes instructed in the owner's manual. No overt signs of fire control component alteration (filing, cutting and/or grinding) were observed.

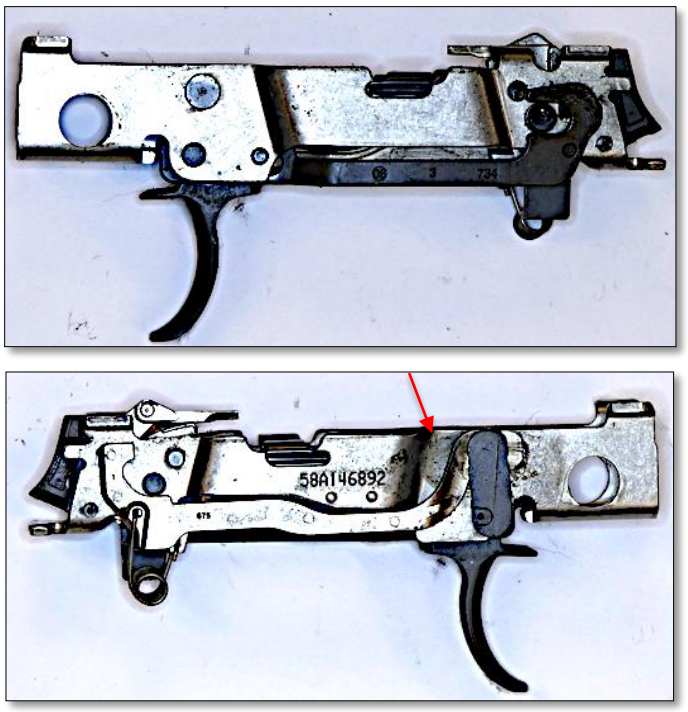


Figure 11.3.2: Oil Coating on the Subject FCU

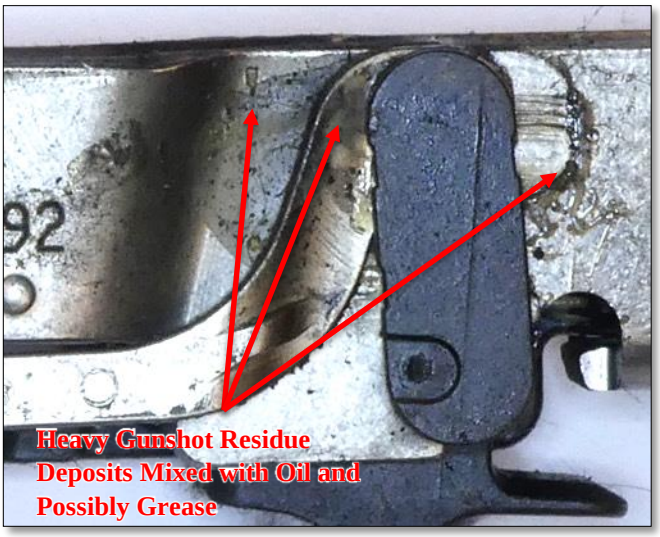


Figure 11.3.3: Subject Trigger Bar and Trigger Pivot

Removal of the fire control unit allowed for direct examination of the subject sear. The sear was shown to be functioning properly via actuating it multiple times and visually verifying it was moving freely and the sear springs were returning the sear with force. The sear and surrounding fire control components appeared covered in a film of lubricant/oil, gunshot residue and unspent propellant. See Figure 11.3.4. Despite the overt lack of

recommended maintenance, the fire control unit was proven to be functioning properly with no signs of damage or overt alteration observed.

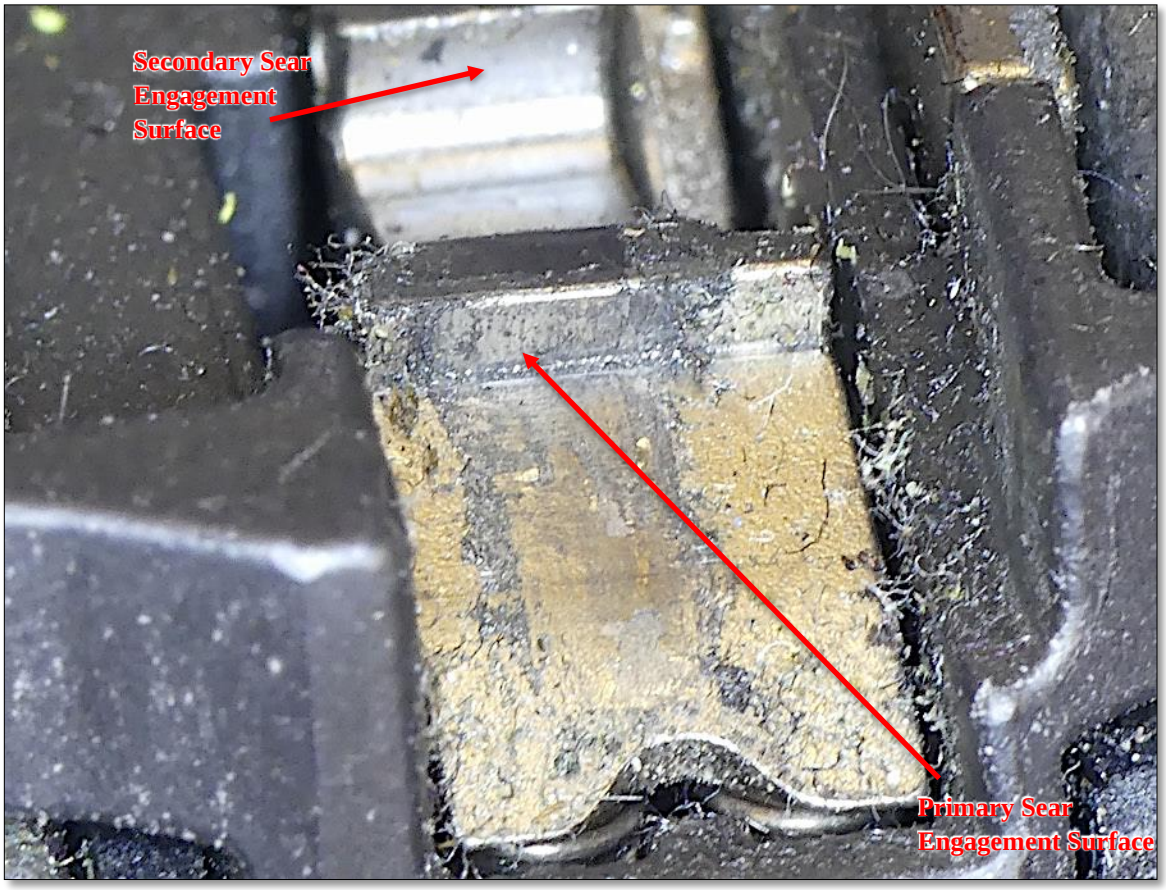


Figure 11.3.4: Subject Sear's Engagement Surface

With the slide removed, the striker pin and its engagement surface was examined. Figure 11.3.5 shows no signs of defects in the striker pin foot and the radii present on the edges of the striker pin are per the design. The burnishing present on the lower edge of the striker's engagement surface is due to said edge sliding against the sear as the trigger is pulled. Correspondingly, the top edge of the sear's engagement surface is burnished as it slides against the striker pin during trigger actuation. These conditions are fully expected results of the proper operation of the pistol and do not present any issue in the proper functioning of the pistol. Contrary to the condition of the FCU, the striker foot was observed to be relatively clean with minimal lubricant observed on the striker's engagement surface.

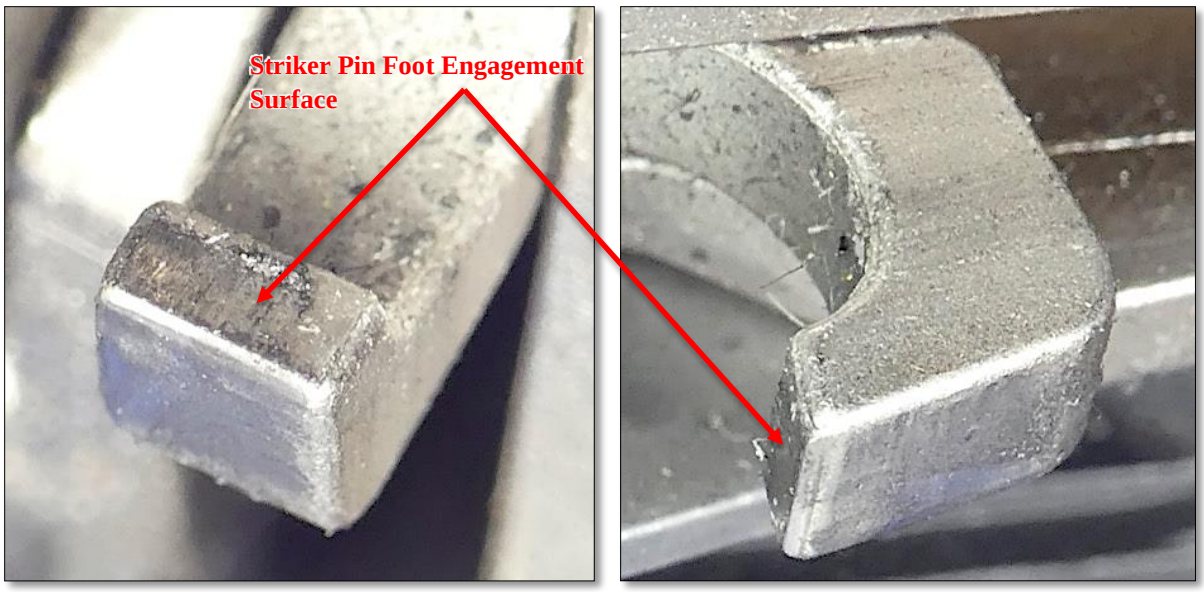


Figure 11.3.5: Subject Striker's Engagement Surface

Removing the striker assembly from the slide revealed no signs of alteration or damage in the assembly. When the striker assembly was removed, the striker safety lock engaged the striker pin, placing the striker pin in the blocked condition. Unlike the FCU, the striker assembly was observed to be very clean and free of excess lubricant, and no overt signs of gunshot residue were observed. Figure 11.3.6 shows the cleanliness of the striker assembly, and the striker safety lock was not only blocking the striker pin but was also pushed down to the fully engaged position when the assembly was removed from the pistol, indicating it was functioning properly.

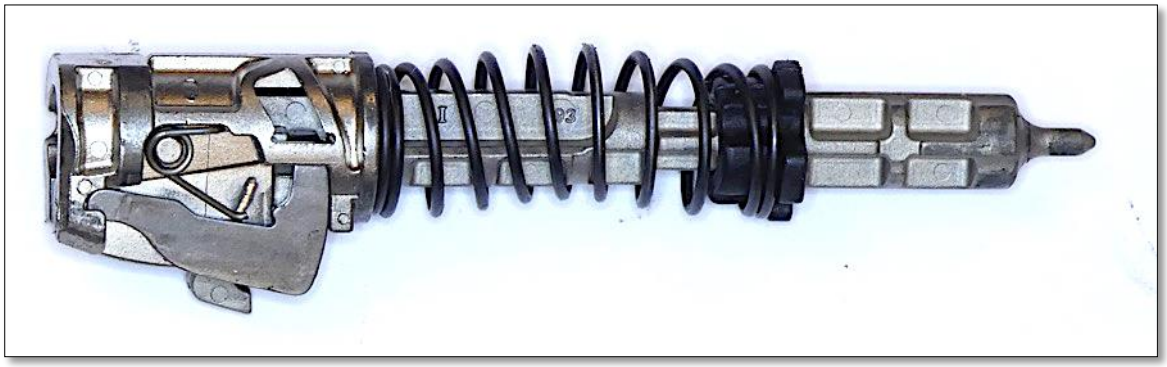


Figure 11.3.6: The Subject Striker Assembly in the Full Blocked Condition

When the striker assembly is removed from the pistol's slide, it is easy to see how the striker safety lock is retained by the striker housing. Figure 11.3.7 shows the striker safety lock is engaged with the striker. Figure 11.3.7 also shows the striker safety lock is fully

restrained by the striker housing. If one attempts to rotate the striker lock safety side-to-side, the striker housing limits the rotation and prevents the striker lock safety from releasing the striker. Plainly stated, the striker pin cannot bypass the striker safety lock unless the striker safety lock is rotated upward to the disengaged position when the trigger is pulled, as per the pistol's design.

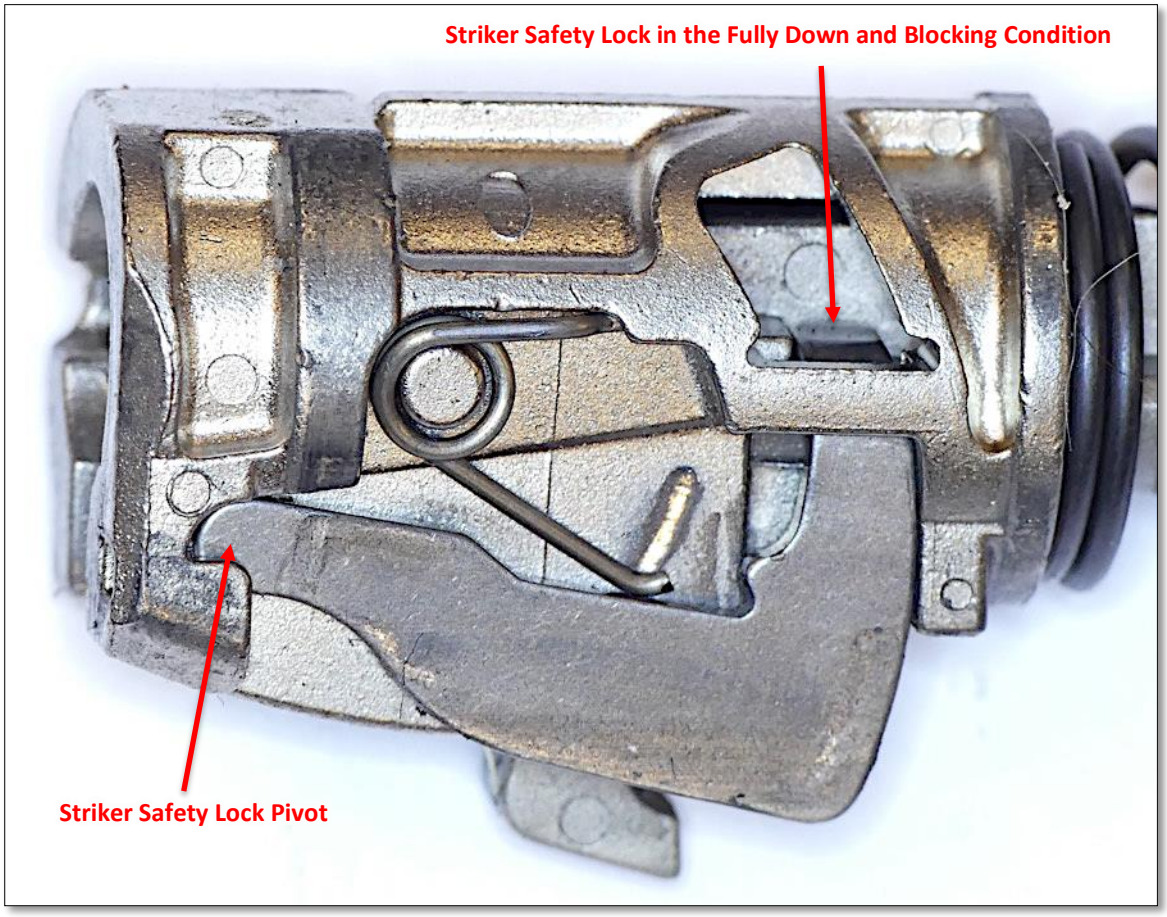


Figure 11.3.7: The Subject Striker Assembly in the Full Blocked Condition

Figure 11.3.8 shows the cosmetic surfaces of the trigger and wear was observed in a couple locations. No overt signs of abuse or alteration to the trigger's bow was observed, but it did appear lubricant or some other unidentified liquid had spilled and dried on the upper section of the trigger.

Figure 11.3.8: Subject Trigger

When the inspection of the subject pistol's internal components was completed, the pistol was reassembled, and function tested again to verify the function of the firearm had not changed due to its disassembly or reassembly. The pistol once again was proven to discharge only when the striker pin was cocked, and the trigger was pulled.

12. Review of Case Materials

In the preparation of this report, I have reviewed the following materials:

- Complaint;
- Motion for Class Certification;
- Mr. Glasscock's subject P320 pistol;
- Exemplar pistols and their information, such as: SIG Sauer P320, P365, P226, 938, S&W M&P 9, Glock 17, 19, 41, Walther PPK, P99, Kahr Arms CT45, SCCY DG1; Hudson H9; BERETTA 92A1, 92FS, 1911 (Para, Colt, Remington, Kimber and others) H&K vP9, Canik TP9 series, Remington RP series, and many more;
- Expert Report -Mr. Gatrost;
- Expert Report -Mr. Biller;
- Depositions - Joshua Glasscock (Volumes I and II);
- Deposition - Matt Taylor;
- Declaration - Ed Murphy;
- Declaration - Tom Taylor;
- Declaration - Matt Taylor;
- Declaration - James Lano;
- Declaration - Phil Strader;
- Technical data package - SIG Sauer P320;
- White, Andrew, US Army moves ahead with handgun replacement programme, IHS Jane's 360 (May 31, 2016), available at: https://web.archive.org/web/20161005215547/http://www.janes.com/article/60814/us-army-moves-ahead-with-handgun-replacement-programme;
- Voluntary Upgrade of the P320 Pistol, Sig Sauer (Aug. 8, 2017); available at: https://www.sigsauer.com/blog/sig-sauer-issues-voluntary-upgrade-p320-pistol;
- DHS-ICE Solicitation, Solicitation Number: HSCEMS-16-R-00003;
- Andrade, Tonio (2016), The Gunpowder Age: China, Military Innovation, and the Rise of the West in World History, Princeton University Press, ISBN 978-0-691-13597-7;
- Malans, Paul; Warren, Eric (2020), The History and Evolution of Ignition Systems, AFTE Journal, Volume 52 Number 3;
- NRA F-Class Rules, Pages 33, 39, & 40. Available at: https://competitions.nra.org/media/9392/2024-fclass-rulebook.pdf;
- Annette Evans, (9/23/2017) Gun Nation: The Beginner's Guide. https://www.pewpewtactical.com/3-gun-nationrules-beginners-guide/;
- Laughery, K. R., & Wogalter, M. S. (2010). The safety hierarchy and its role in safety decisions. In W. Karwowski & G. Salvendy (Eds.) Advances in Human Factors, Ergonomics and Safety in Manufacturing and Service Industries (pp. 1010-1016).

Boca Raton, FL: CRC Press. Also on CD ROM: ISBN-13: 978-0-9796435-4-5: ISBN-10_0-979-6435-4-6;
- Trigger Safety Patents: US2401482, US339301, US290737, US5402593, US6553706, US6843013, US7690144, US9739557, US11920882;
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- National Shooting Sports Foundation Firearm Safety Rules, NSSF, https://www.nssf.org/download/nssf-firearm-safety-depends-on-you/?wpdmdl=51178;
- Katz, Walter W. (2015, December). Assessing the Rise in Unintended Discharges Following the Sheriff's Department's Conversion to a New Handgun. Office of Inspector General County of Los Angeles;
- Ziegler, Suzie. NYPD to give new recruits guns with lighter trigger pulls for improved accuracy. Police 1 (August 27, 2021), Available at: https://www.police1.com/police-training/articles/nypd-to-give-new-recruits-guns-with-lightertrigger-pulls-for-improved-accuracy-wv2XnYZzEpfDa2DH/;
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- Glock's Performance Trigger, Glock, https://us.glock.com/en/LEARN/GLOCK-Pistols/performance-trigger, https://store.glock.us/glock-performance-trigger-9mm;
- American National Standard SAAMI Z299.5-2016
- SIG-MARKETING000213;
- Gunwerks, Killing Creep. https://www.gunwerks.com/blog/lrp-blog-2/killing-creep-24
- SCCY, DVG-1 Model Pistol, https://sccy.com/firearm/dvg-1/;
- Kahr Arms, CT Series Pistols, https://www.kahr.com/c-series-handguns/;
- SIG Sauer, P365 Series of Pistols, https://www.sigsauer.com/firearms/pistols/p365.htm;

- American National Standard, SAAMI 2299.5-2023, Voluntary Industry Performance Standards Criteria for Evaluation of New Firearms Designs Under Conditions of Abusive Mishandling for the Use of Commercial Manufacturers, page 3, saami.org;
- [redacted]
- NIJ Standard-0112.03, National Institute of Justice Law Enforcement and Corrections Standards and Testing Program, Autoloading Pistols for Police Officers, Page 6, Section 4.5.3; and
- Any other materials that are referenced in the footnotes in my report.

Exhibits which I may use to explain or support the opinions expressed at trial include the afore-mentioned materials along with exemplar pistols, exemplar ammunition, cutaways, computer simulations, videos and other demonstrative exhibits.

Attached are a copy of my resume, a listing of my testimony for the last four years, and expert fee schedule.

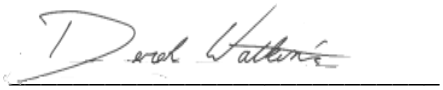
13. Conclusions

As reiterated above, based on my education, training, and experience in product design and firearm design, manufacture and function, my review and study of the information provided regarding the circumstances of the shooting, and my inspection and testing of the subject pistol and exemplar pistols, I conclude that the SIG Sauer P320 pistol platform is not defective and that its trigger pull characteristics, fully energized nature after loading a round of ammunition into the chamber, and absence of an external manual safety (purchaser selected option), individually or combined, do not constitute a product defect.

I reserve the right to change and supplement my opinions and conclusions following my examination of any additional case materials presented, including depositions.

Date: 03-31-2025

This report was prepared and authored by:



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