

RESEARCH

The M16 in Vietnam: A History of the Weapon's Effectiveness in the Vietnam War and the Necessity of its Creation

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Based off the AR-15 and necessitated by the need for a superior weapon to that of the enemy, the M16 made its debut in the Vietnam War. The M16 was an icon for protagonists in movies and TV, a symbol for democracy, and it became the image for American or NATO forces for decades to come. It is still in service today as the standard issue weapon for 85 sovereign nations, including the United States. Few doubt the efficacy of the weapon's later, more advanced models in the Gulf War, the invasion of Grenada, or the war in Afghanistan. The Vietnam War, however, was the debut of the M16. However, the weapon's effectiveness has faced scrutiny within the context of the Vietnam War. So, the question remains: was the M16 an effective weapon in the Vietnam War, and was it a necessary implementation?

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The loudest sound in a firefight is your weapon going "click." In an instant you realize that the one thing that might protect you from the enemy has failed, and you're in a race against time. You drop to your knees and disassemble your rifle in a desperate attempt to clear the jam and stay alive. When you look up, you see a pair of eyes filled with pure hatred for you, staring down the sights of an AK-47. He doesn't know your name, but he knows your flag, and he flinches only from the recoil of his weapon as he mercilessly guns you down. You stare off, seeing the skyline of a city you can't pronounce, dying in someone else's country, bleeding out beside your broken M16.

This morbid scene was quite often the reality for many infantrymen in the United States Army and Marine Corps during the conflict in Vietnam. It's no secret that the United States was greatly underprepared for a war against such a formidable opponent in such an adverse environment. Guerilla warfare tactics and disease killed thousands of unwilling young men, but neither were so terrifying as having your own life flash before your eyes as you watched your only line of defense go down in your hands. Fighting a war in a jungle was difficult, but it was even more so due to the soldiers' lack of access to adequate weaponry. As evidence will suggest throughout this analysis, the M16's reliability early in the war was questionable at best and, in many cases, proved to be suicidal. A Vietnam veteran told a Time Magazine reporter in 1967, "We left with 72 men in our platoon and came back with 19, [sic] Believe it or not, you know what killed most of us? Our own rifle. Practically every one of our dead was found with his (M16) torn down next to him where he had been trying to fix it."¹

Based off the AR-15 and necessitated by the need for a superior weapon to that of the enemy, the M16 made its debut in the Vietnam War. The M16 was an icon for protagonists in movies and TV, a symbol for democracy, and it became the image for American or NATO forces for decades to come. It is still in service today as the standard issue weapon for 85 sovereign nations, including the United States.² Few doubt the efficacy of the weapon's later, more advanced models in the Gulf War, the invasion of Grenada, or the war in Afghanistan. The Vietnam War, however, was the debut of the M16. However, the weapon's effectiveness has faced scrutiny within the context of the Vietnam War. So, the question remains: was the M16 an effective weapon in the Vietnam War, and was it a necessary implementation?

It is important to look at the design and the intention of the M16 before judging the performance. During World War II and the Korean War, the most common standard issue weapons were the M1 Garand, the M1A1 Carbine, and the M1921 submachine gun, also known as the Thompson Submachine Gun. The M1, the most common weapon, was a clip-fed semiautomatic

¹ "Defense: Under Fire". Time; 09 June 1967.

² "Colt M16A2" Militaryfactory.com; 2003.

rifle that sported a variation of heavy ammunition types, including the .30-06 Springfield and the 7.62 × 51 mm NATO.³ These ammunition types would rip through small cover, like wooden walls and thin metals, but they presented their own drawbacks. The 7.62 was a heavy round, and soldiers found it difficult to maneuver through a battlefield and retain their stamina while carrying scores of heavy clips. The bullet's weight also slowed its velocity, which caused its trajectory to drop and made it vulnerable to wind resistance. 7.62-fed weapons are still in use today, so the bullet setback was not the main call for an upgrade for the M1. A major reason an upgrade was needed was the weapon's ammunition capacity and reload speed. Reloading the M1 was time-consuming and had to be done with careful precision. A bent clip or a loose bullet could create jams and malfunctions. At a maximum of 8 rounds per clip, soldiers needed to excel at reloading quickly. Switching from a clip-fed weapon to a magazine-fed weapon not only increased the round capacity but made reloads easier and faster.

Speed, accuracy, and ease of use were not the only things required of a new service weapon. If that were the case, the M14, another 7.62 × 51 mm weapon predating the M16 by about 15 years, would have fit all of these qualifications quite handily. This would have been the ideal weapon to have in Vietnam, especially since the soldiers trained with the M14 stateside in basic training. M14s were capable of operating in semi-automatic and fully automatic firing modes. A larger round being shot through a longer barrel packed a much larger punch against an enemy who carried 7.62 ammunition themselves, not to mention its versatility at mid-range and long-range engagements. The M14's shortcomings rested in its unwieldy, almost uncontrollable, fully automatic setting. The kickback of the weapon was simply too strong for the recoil to be manageable. The Army attempted to resolve these issues by manufacturing models with heavier barrels, muzzle brakes, and even a foldable bipod on the front to maintain accuracy. All of these attempts failed to cure the unreliability of the M14 and maintained its inferiority to the Browning Automatic Weapon (BAR) as a squad automatic rifle. However, the problems did not end there. The heavier round made it difficult to carry enough ammunition to maintain fire superiority over the Soviet-engineered AK-47, the weapon of choice for the Vietnamese.⁴ It was outclassed, and thus forced the military to create a new weapon: the M16.

If the only issue at hand was that the United States had inferior weapons to the AK-47, why would the military not just adopt the Kalashnikov AK-47 as a standard issue rifle? They were relatively cheap to manufacture; in present day, there are over one hundred million Kalashnikov firearms, which is one fifth of the entire world supply of firearms. This strategy may also have yielded the benefit of using captured enemy munitions against them.⁵ The U.S. military's goal was not to match the enemy's ability, but rather to create a superior rifle. Using Soviet weapons would not tip the scales.

Besides these small details, some immediate, more measurable advantages presented themselves in the M16. The M16 was ergonomically a superior weapon to the AK-47 in almost every way. Reloads on the M16 were faster, getting empty weapons and vulnerable soldiers back into the fight much quicker.⁶ This was mostly due to the general design of the weapon, since the M16 had a magazine well that guided the user's hand. It was also due to the fact that when the rifle ran out of ammunition, the bolt locked to the rear, indicating the need to reload. The AK-47 lacked such a feature, making it difficult to quickly tell when you needed to reload. The selector switch, which the user could manipulate to set the weapon to safe, semi-automatic, or full auto, was much easier to access on the M16 as well. The selector lever on the AK-47 was on the right side, and was designed to be very large, requiring the user's full right hand to manipulate. As opposed to the M16, which had just a small switch on the left side, accessible by the user's thumb while holding the pistol grip.⁷

These features were minor when compared to actual use of the weapon in combat, specifically the ability to hit a target. A study was conducted on the performance of the M16 and AK-47 by the United States Army in May of 1990, overseen by Lieutenant Colonel J. M. Weaver Jr. The study concluded that an M16A1's probability to hit a target without any aiming errors was 100% up to 300 meters, 73% at 600 meters, and 39% at 800. Rates for the AK-47 were 94% at 300 meters, 54% at 600 meters, and 31% at 800 meters.⁸ This is due to the heavier cartridge that the AK-47 sports, combined with its inferior and unreliable iron sights. However, a comparison of accuracy is not all that can be done to test the effectiveness of the M16.

Penetrative ability also mattered, and the AK-47 did seem to outshine the M16 by blasting through almost anything in front of it. That might sound like an advantage to the credit of the AK-47, but that is not necessarily true in the context of war. Research suggested that a smaller, faster moving round, would do more damage than a heavier round. The creator of the original M16, Eugene Stoner, explained that while smaller bullets are more stable while flying through the air, they become unpredictable after making contact with a target.⁹ This can cause more internal damage, which is more likely to

³ Thompson, Leroy (2012). *The M1 Garand*. Oxford: Osprey. p. 33.

⁴ Bruce, Robert. "M14 Vs. M16 in Vietnam." *Small ARms Review*.

⁵ Killicoat, Phillip (April 2007). "Weaponomics: The Global Market for Assault Rifles" (PDF). World Bank Policy Research Working Paper 4202 (Post-Conflict Transitions Working Paper No. 10). Oxford University. P. 3.

⁶ <http://www.military-sf.com/ROF.htm> Rates of fire By William S. Frisbee Jr.

⁷ <http://www.tactical-life.com/magazines/special-weapons/in-praise-of-the-m16-rifle/?scrape=true> Tactical Life. In Praise of the M16 Rifle. Why it's become the longest serving rifle in the recent US military history! By Chuck Taylor. June 13th 2009.

⁸ Weaver, Jr., Jonathan M. (May 1990). "USMAA Technical Report No. 461 – System Error Budgets, Target Distributions and Hitting Performance Estimates for General Purpose Rifles and Sniper Rifles of 7.62 × 51 mm and Larger Calibers" (PDF). *dtic.mil*. United States Army.

⁹ Fallows, James. "M-16: A Bureaucratic Horror Story." *The Atlantic*, Atlantic Media Company, 7 Nov. 2017.

result in a fatality. This means that even a poorly aimed shot, as long as it makes contact with an enemy, can still potentially do more damage than a bigger bullet.

Dr. Martin L. Fackler conducted tests at the Wound Ballistics Laboratory in San Francisco, California in 1990, and determined that while the AK-47's penetrative power was superior, it actually caused less damage to the human body. His studies confirmed what Eugene Stoner had envisioned with his weapon design. The large mass of 7.62 rounds propelled it clean through flesh, creating a clear path that could be easily patched up. A shot from the M16, however, with its lighter round, would create more internal bleeding. Once the lighter round hit a solid target, it tumbled, which created massive internal bleeding. This could not be fixed during a firefight and required surgery to repair.¹⁰ Even if the shooter missed a vital organ, there was still a chance that the round would bounce around inside the victim's body and cause enough damage to kill him later.

Mechanical superiorities, however, were not enough to ensure victory in a battle. If soldiers do not feel like their efforts are making a difference, their morale (or lack thereof) can turn the tides in the enemy's favor. The M16 boosted the confidence of soldiers. The ability to lay down effective fire compared to the automatic riflemen beside them made them more self-assured that their role in their squads was as valuable as others, which is incredibly important on the battlefield. Samuel L. A. Marshall, a combat historian during the 1940s and 1950s, conducted a study that concluded that nearly four fifths of combat soldiers in the European theater of World War II never fired their weapons during battle.¹¹ The BAR, a squad-level, shoulder-fired machine gun used in the Second World War, was a weapon of incredible stopping power. There would typically be one or two per squad of twelve men, and engagements would often begin by the BAR man opening fire first to produce the most casualties as early as possible. Firing would begin with him, and spread out from there, which meant that the nearer a man was to the BAR, the more likely he was to fire. Many believed that using the semi-automatic M1 was futile because of the raw power behind the BAR. John Keegan, a prominent military historian, writes in his book, *The Face of Battle*, "Infantrymen, however well-trained and well-armed, however resolute, however ready to kill, remain erratic agents of death. Unless centrally directed, they will choose, perhaps badly, their own targets, will open and cease fire individually, will be put off their aim by the enemy's return of fire, will be distracted by the wounding of those near them, will yield to fear or excitement, will fire high, low, or wide."

Most infantrymen could not see their targets but knew generally where they were and would often either fire blindly or hold fire entirely. The BAR man, in contrast, could suppress an area with relative ease, which discouraged anyone else from even trying. Because of how powerful the BAR was, many ambushes would be over as soon as they started; there was often no need for anybody else to participate in the action. This was a problem that needed remedy, and the M16 offered a solution. With all the advantages of automatic fire, recoil control, and ballistic reliability, soldiers felt that their efforts were contributing more to the fight than just shooting leaves and grass.

The M16 proved to be a superior weapon to that of the enemy's AK-47. The M16 excelled in crucial comparisons between the two rifles – namely in accuracy at long range, accuracy in fully automatic fire, quick reload capabilities, its lighter weight (both for the rifle itself and for its ammunition), and the damage possible against an enemy force. Having the M16 also gave American soldiers an edge over the Viet Minh because it served to boost soldiers' confidence during a firefight, which helped eliminate complete reliance on the squad's machine guns. In many ways, the M16 was superior to the weapons used by the enemy, but the tests to determine so were mostly done in closed environments. To determine how reliable the weapon truly was, testing environments must match the environment of war as closely as possible. Initially, the M16 was notorious for jamming frequently. The House Committee on Armed Services conducted a series of reliability tests on the M16. Stoppages were recorded at 3.3%, with 33 total stoppages from five rifles fired 200 times each.¹² In the same hearing before Congress, a representative from the Air Force also claimed that they recorded, "Of the total malfunctions 78.7% were in the category of failure of bolt to go forward." The most common reason for stoppages was improper, or an entire lack of, lubrication.¹³ Why was this number so high? What was wrong with the M16 that did not occur with the M14 or M1 Garand? The biggest problem was the advertisement of the M16 as a "self-cleaning weapon" by Colt, its manufacturer.¹⁴ This sowed a false sense of reliability in the weapon. Few soldiers, if any, went through the trouble of cleaning out the barrel or chamber of their rifles. This problem was made worse by the mechanical design of the M16.

The M16's "internal piston" design used combustion to move the internal parts, as opposed to gas pistons that were common in machine guns, including the AK-47. This made the M16 lighter, but much hotter. The internal piston design also forced any byproducts of the miniature explosion, such as carbon and vaporized metal, into the receiver. This required soldiers to clean their weapons more frequently than those using gas-piston weapons. Heat from frequently firing the

¹⁰ The Effects Of Small Arms On The Human Body, By Martin L. Fackler, Md Archived 2012-02-18 at the Wayback Machine (PDF).

¹¹ Burdett, Thomas F. (June 15, 2010). "Bibliography: Marshall, Samuel Lyman Atwood." *Handbook of Texas Online*.

¹² Hearings, Reports and Prints of the House Committee on Armed Services, Issue 14, Part 1. United States. Congress. House. Committee on Armed Services. U.S. Government Printing Office. 1969. Page 2326.

¹³ Major Thomas P. Ehrhart Increasing Small Arms Lethality in Afghanistan: Taking Back the Infantry Half-Kilometer. US Army. 2009.

¹⁴ Bruce, Robert (April 2002). "M14 vs. M16 in Vietnam." *Small Arms Review*. 5(7).

weapon could cause whatever lubricant was available to burn off very quickly. Dirt, dust, and debris can prevent all moving components within the weapon from moving freely. Carbon buildup from gunshot residue within the chamber was a culprit, but also consider the environment the weapon was used in— a jungle is certainly not a place you would want to take such a delicate instrument, especially one that was not regularly maintained. As a result of this false advertisement by Colt and the government's rush to get soldiers armed and shipped overseas in the first years of the war, soldiers were not issued cleaning kits for their weapons, nor were they provided lubricant. Regular cleaning and proper lubrication are paramount to making sure a weapon will fire reliably, but many men had neither. But this is just once piece of the larger puzzle. An unclean weapon caused countless stoppages, but the inability to quickly and efficiently clear those stoppages was what killed so many men.

The M16 lacked a component that allowed a soldier to manually close the bolt. If the bolt is not entirely closed, the shot will misfire. With bolt action weapons, common throughout World War II and the Korean War, soldiers could manually push the bolt fully forward. This was not the case with the M16, because its bolt was fully encased by the upper receiver, manipulated by the charging handle, which could only be pulled backward. There was a proposal to include a mechanism in the original AR-15, the M16's prototype, to manually close the bolt, but the proposal was rejected as useless. A representative from the Air Force, in the 1969 congressional hearing, claimed that a manual bolt closing device was unnecessary. He claimed that, after three years of testing, none of the problems found could have been remedied by a bolt closing device. The Marine Corps, Army, and the creator of the weapon all agreed that the bolt closing device was unnecessary. The problems that arose during the early years of the Vietnam War would soon prove them correct, but only by technicality. The problems with the M16 would not have been remedied by a manual bolt closing device, but they could be temporarily fixed long enough to keep soldiers alive so they could fix the problems later.

Misfire was a serious problem. Without a manual bolt closing device, a soldier with a jam would have to tear down the entire weapon and fix the weapon with their hands. Another common reason that a weapon system would go down was because of something called "failure to extract."¹⁵ This occurred when the spent cartridge from a fired round would not eject from the upper receiver, and a new round would be loaded in, jamming the spent cartridge into the chamber with the brass casing still inside. Soldiers would have to shove rods down the barrel of their rifles to attempt to knock the empty cartridges out, similar to a Revolutionary War soldier with a musket. These issues happened often and were the cause of men's deaths more often than necessary. Since many military officials considered a manual bolt closing device unnecessary, there was no alternative to this dangerous and time-consuming task. The improved model M16A1, issued to the armed services in 1969,¹⁶ finally included a manual bolt closing device – the forward assist.¹⁷

The M16A1 was one of the first models to improve upon the original M16. The forward assist was one of many critical improvements, because it finally offered a solution to a problem that plagued the Army and Marine Corps for almost three years. The forward assist was a small button the right side of the rifle that, when struck with enough force, would push the bolt as far forward as possible. In many cases, the bolt would not lock in completely as a result of debris or lack of lubrication. The forward assist offered a temporary, field expedient solution to this problem. It offered what the government had claimed was unnecessary – a manual bolt closing device. The manufacturers also implemented a chrome-plated chamber that would reduce corrosion, and therefore stoppages.

In April of 1967, twelve chrome plated M16s were shipped to Vietnam for evaluation, but when the Army Weapons Command technical team arrived in Vietnam in May of 1967, only two of these rifles could be found. No tests were, or could have been, conducted to determine how effective the chrome-plated design was. Because of the lack of convincing evidence, the Army delayed its decision to implement chrome-plating on the interior of the M16. This would have made the weapon's debut more successful and is what eventually helped make the M16A1 a much more appealing weapon. The third of the major changes was not actually a change to the rifle itself, but rather a rifle accessory. The Army started to issue thirty-round magazines instead of the iconic twenty-round magazines that soldiers carried in the beginning of the war. The Army also made these magazines out of cheaper materials, so that they could be cheaply made en masse, and made the springs within the magazine stainless steel to resist rust.

These fixes could help solve problems when they arose, or delay issues that might have occurred, but would preventing these problems altogether not be better? The Army thought so, and in July of 1969 soldiers were issued cleaning kits for their rifles, as well as instructions on how to clean them.¹⁸ DA Pam 750-30, the official army regulation on weapon maintenance, gave step-by-step directions on what to check for and what might be done to correct any issues. The regulation included small nuggets of advice, such as to- "inspect your ammo when you load the magazines. Never load dented or dirty

¹⁵ Chivers, C.J. "How Reliable Is the M-16 Rifle?" *The New York Times*, The New York Times, 2 Nov. 2009.

¹⁶ Ezell, Edward Clinton (1983). *Small Arms of the World*. New York: Stackpole Books. Pp. 46–47. ISBN 978-0-88029-601-4.

¹⁷ Report of the M16 rifle review panel. Department of the Army. DTIC. 1 June 1968.

¹⁸ *Full text of "DA Pam 750-30."* 28 June 1968.

ammo...," and to "clean your rifle every chance you get – 3–5 times a day's not too often in some cases. Cleanliness is a must – and it may save your life!" This was not an exaggeration. It could quite literally save your life.

Between 1967 and 1968, the death toll of American soldiers jumped from 11,363 to 16,899. The following year, when the M16A1 was made standard issue, the death toll fell back down to 11,780.¹⁹ 1968 was the year with the most American casualties. Afterwards, just two years later in 1971, the numbers steadily declined to 2,357.²⁰ Was this due to the improvements made on the M16? The improvements made on the weapon system were crucial to its effectiveness, however there is a lack of evidence that this was a largely contributing factor. During 1968, the Tet Offensive created a rippling effect in the figures of casualties at the time. 1968 had more casualties than any other year, but also had the greatest number of troops in Vietnam compared to any other year, at 536,100 troops.²¹ The year following, there were 475,200 American troops in Vietnam. This means that in 1968, 3.1% of American troops were killed in combat, and in 1969, that number dropped to 2.4%. If one was to compare the ratio of soldiers killed in action to the number of soldiers in

Vietnam, the results would be a steady decline since 1969. The number of foreign soldiers aiding the United States against North Vietnam either remained about the same, or decreased, depending on the country. While the improvements made upon the M16 were crucial in this time, many other major factors contributed to these figures, mainly the Tet Offensive of 1968.

In its early years, the M16 fell short of expectations for a number of reasons. Its unreliability in combat situations could often be traced back to mechanical malfunctions, namely "failure to eject." This issue could have been avoided if men had been given tools and instruction on how to maintain their equipment. Without proper lubrication, taking such a temperamental instrument to a jungle was simply a recipe for disaster. Nevertheless, even with the M16's life threatening problems, its later models would end up proving to be reliable and effective. No previous weapon used in American wars could possibly outclass the AK-47 that the enemy most often used. The only option to improve the effectiveness of infantrymen was to make improvements on the work the Army had already laid out in the development of not only the AR-15, but of other automatic magazine-fed weapons. Midway through the war, the Department of Defense began issuing the M16A1 and maintenance supplies. This solved almost all the problems associated with the previous model, the M16. Having functional, safe weapons also boosted the morale of troops, giving them the confidence that their efforts were making a difference in the war they were forced into. The problem of soldiers not believing their efforts on the battlefield was solved by the increased ammunition capacity from the M1 Garand, the most common weapon used in World War II, as well as the fully automatic feature. No longer did men have to rely almost entirely on machine gun fire to succeed in an ambush or to suppress an enemy fighting position. The M16's lighter caliber made whatever wound it created much deadlier than the heavier counterpart of the M14, because of the ballistic behaviors the M16 displays when hitting a hard target. Even the best combat medics cannot treat internal bleeding.

The shortcomings of the M16 were not entirely the fault of the weapon's design. Improper maintenance equipment and the lack of instruction on how to properly care for it exaggerated the problems that were inherent to its design. The mechanical improvements on the M16A1 significantly reduced weapon malfunctions. The M16 and M16A1 were effective weapon systems because of their ability to outclass the weapons of the enemy and to boost the morale of American soldiers, however their implementation was only a decisive factor in the outcomes of small engagements, not the war itself. With that, I can firmly conclude that the M16 in the Vietnam War was an ineffective weapon until its reformation and re-release with proper instructions and supplies in the last chapter of the war.

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