

B-2 Stealth Bombers over Iran: Why Did These Cinematic Air Strikes Become Reality?

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Introduction

The history of Iran pursuing the development of nuclear weapons is now more than 20 years long. Even after the fact that it was secretly developing nuclear weapons was exposed in 2002, Iran continued to expand its centrifuges and enrich uranium, ostensibly for “peaceful uses.” In 2022, Israeli defense officials warned that Iran would be able to acquire nuclear weapons-grade uranium within two weeks, raising international alarm about the possibility of a nuclear attack on Israel. In reaction, Tel Aviv signaled that it was preparing for a preemptive air strike, while Washington reaffirmed that “all options remained on the table,” pushing regional tensions to a new height.¹ Against this backdrop, several studies had predicted the possibility of preemptive air strikes against Iranian nuclear facilities.²

On June 22, 2025 at about 2:00 a.m. (local time in Iran), under Operation Midnight Hammer conducted by the U.S. military, U.S. Air Force B-2 Spirit stealth bombers carried out air strikes on multiple underground nuclear facilities inside Iran.³ The GBU-57 bunker-buster bombs (commonly known as Massive Ordnance Penetrators (MOPs)) which were reported to have been used are non-nuclear weapons with extremely high penetrating power due to their hardness and weight, and their ability to reach underground structures deep within mountains shocked the world.

On the other hand, information concerning the Battle Damage Assessment (BDA) of Operation Midnight Hammer is still limited even now, and in particular there is still little conclusive information about whether or not Iran’s nuclear development program has stopped functioning. Furthermore, the impact this operation will have on the Middle East region in the future remains unknown.

However, even given these circumstances, I believe that these air strikes by the B-2s were themselves extremely significant in the history of air operations. With this in mind, this paper will provide a brief overview of the air strikes on Iran by the B-2s, add an analysis, and discuss their historical significance.

Overview and Analysis of the B-2 Launch for the Iran Strikes

Late at night on June 20, 2025 (U.S. Eastern Standard Time (EST)), several B-2s took off from Whiteman Air Force Base in Missouri, the United States. These formations continued flying westward toward the Pacific Ocean with their transponders activated. This occurred immediately after U.S. President Donald J. Trump had declared that he would launch a military operation within two weeks, so it attracted attention on social media and elsewhere,⁴ leading some to speculate that these B-2 formations were deploying to Guam in the Pacific Ocean or Diego Garcia island in the Indian Ocean to prepare for a military operation against Iran.⁵

However, these formations were decoys for a diversionary tactic,⁶ and actually a different formation of seven B-2s heading for Iran began to take off from the same base approximately one hour later at one minute past midnight on June 21. This formation of seven aircraft did not activate its transponders and flew eastward toward the Atlantic Ocean while taking operational security measures and repeatedly refueling inflight over the U.S. mainland and the Atlantic Ocean.

This formation of seven B-2s did not fly directly from their home base to Iran, but instead selected a slightly longer flight path over international waters in the Mediterranean Sea ⁷ (refer to the figure). It is thought that this was an attempt to limit prior coordination with foreign governments to obtain permission for the overflight.

Furthermore, approximately 30 air refueling tankers were used in Operation Midnight Hammer. These air refueling tankers had been deployed in advance to Ramstein Air Base in Germany, Morón Air Base in Spain, and other places.⁸ Moreover, 4th and 5th generation fighters were used to sweep for threats in front of the B-2 formation. F-35s and other fighters also took off from U.S. military bases in Europe and rendezvoused a series of times with the B-2 formation, gradually forming a strike package.

This strike package then entered Iranian airspace as scheduled at 6:00 p.m. EST, 18 hours after the B-2s took off from their home base. Operational security measures were thoroughly implemented up until this entry into Iranian airspace, with inflight refueling and rendezvous with fighters conducted with only extremely limited radio communication.⁹

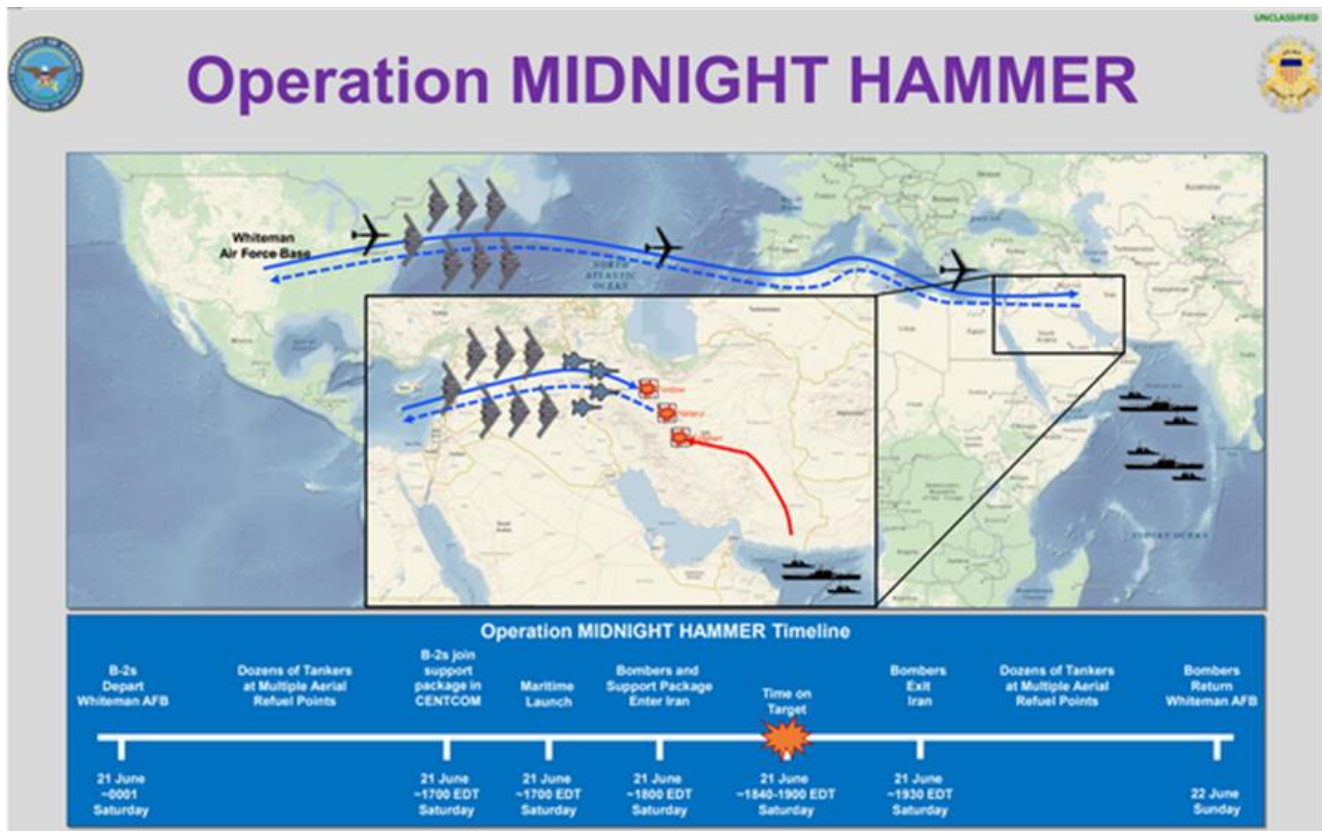


Figure: After the operation had ended, Chairman of the Joint Chiefs of Staff John D. Caine explained the flight paths, force structure, and timeline of the B-2s, and other matters, with reference to these panels (U.S. Department of Defense, "Secretary of Defense Pete Hegseth and Chairman of the Joint Chiefs of Staff General Dan Caine Hold a Press Conference").

Overview and Analysis of the B-2 Air Strikes on Iran and Return to Base

After entering Iranian airspace, the B-2s, each carrying two GBU-57 bombs with a weight of 30,000lbs (approximately 13.6 tons), approached their targets while minimizing their visibility to avoid the risk of interception by Iranian air defense systems. Electronic warfare aircraft (EA-18G Growlers) and other aircraft on patrol simultaneously carried out electronic interference against the Iranian air defense systems.

In fact, Iran's air defense systems had been weakened by attacks by the Israeli military on the Iranian air defense systems which had continued since October 2024, last year,¹⁰ and as a result there were no major counterattacks from Iran's air defense systems, which are based on the S-300 missile system, and there were no interceptions by the fighters of the Iranian Air Force either.

The entry route of the B-2s was extremely meticulously planned, and approximately 40 minutes after entering Iranian airspace, the seven B-2s dropped a total of 14 GBU-57 bombs on the inland nuclear facilities in Fordow and Natanz. The times on target (TOTs) were set in the period from 6:40 p.m. to 7:00 p.m. (EST), and more than 20 Tomahawk cruise missiles were launched in advance from a U.S. Navy submarine deployed near the Persian Gulf to destroy the surface facilities at Esfahan in coordination with the TOTs.¹¹

The GBU-57s, dropped to destroy nuclear facilities constructed deep underground in mountainous areas of Iran, were super-large bombs weighing over 13.6 tons and capable of penetrating up to 60 meters below ground. It is reported that the MOPs with this weight exploded after reaching Fordow and the other nuclear facilities deep underground.¹²

After the air strikes led by the B-2s were completed, the B-2s immediately left Iranian airspace and returned to their home base on a non-stop flight of a total of 13,000 NM (approximately 24,000 km), taking approximately 36 hours, with repeated inflight refueling.¹³ Operation Midnight Hammer used a total of 75 munitions, including not only the 14 GBU-57s dropped by the B-2s but also precision-guided munitions from the patrolling fighters. A total of more than 125 aircraft participated in the operation.¹⁴ The damage caused by these air strikes is still not clear and the BDA is still ongoing, but the damage will likely be assessed using a combination of SAR satellites and UAVs.¹⁵

Meanwhile, Iran, which received direct strikes from 14 MOPs each weighing 13.6 tons, has of course publicly acknowledged the damage it suffered.¹⁶

The Operational Characteristics: Global-Scale Strategic Strike Capability

This joint operation centered on B-2 airstrikes proved highly symbolic in demonstrating the U.S. military's capability to project strategic strikes "from the U.S. mainland to the other side of the globe" without utilizing forward bases overseas. Furthermore, we should note the time gap between the political decision and military action. According to media reports, U.S. President Trump decided to carry out the attack a mere two days before this operation.¹⁷

Nonetheless, it is hard to believe that such a large-scale, complex joint operation could actually have been executed spontaneously. On the contrary, it is more reasonable to conclude that the U.S. military routinely maintains a detailed target list and the air strikes by the B-2s on this occasion were simply an operation launched based on the target list. In fact, Chairman of the Joint Chiefs

of Staff Caine explained in a press conference on June 25 that the U.S. had been working on the operation for more than 15 years.¹⁸

As if symbolizing this point, the movie “Top Gun: Maverick” released in 2022 depicts an air operation to carry out a precision strike against an underground nuclear facility in the mountains of a certain “enemy nation.”¹⁹ Is it a coincidence that the story of this film, which was produced in cooperation with the U.S. Department of Defense, and the air strikes by the B-2s in this case are remarkably similar in terms of targets, terrain, and tactics?

The Operational Characteristics: Denuclearization of Strategic Strikes

One reason these B-2 airstrikes will be a landmark in aviation history is that they demonstrated “strategic non-nuclear strikes” as a realistic option. It is worthy of note that previously the use of tactical nuclear weapons was considered unavoidable for physically destroying nuclear facilities built underground, but these air strikes have shown, at least from the perspective of the execution of operations, that similar deep strikes are possible using bunker-buster-type high-performance conventional weapons such as the GBU-57 without relying on nuclear weapons. At the current time the BDA has not been finalized, but the fact that these kinds of deep precision strikes using non-nuclear weapons have reached the implementation stage will in itself undoubtedly have a major impact on military doctrine going forward.

Such attack models are not the result of sudden technological advances, but have been systematically conceived within the U.S. strategic academic community. A typical example is the preemptive and conventional counterforce theory proposed by Keir A. Lieber and Daryl G. Press.²⁰ This theory asserts that it is possible to neutralize the nuclear retaliation capability of an adversary using non-nuclear precision weapons, and is a new deterrence theory which replaces the previous Mutually Assured Destruction (MAD) by establishing deterrence with preemptive and limited counterstrikes using conventional weapons. They have consistently argued that even if the enemy digs deep underground, precision and high-performance conventional weapons can destroy them, overturning the enemy's common belief that “escaping underground will deter U.S.”²¹

Meanwhile, Brad Roberts takes a position which differs from the preemptive and conventional counterforce approach of Lieber and Press and places importance on “limited and phased” attacks on the enemy's core military capabilities (C3I, nuclear facilities, etc.) and views punitive strikes against strategic targets using non-nuclear weapons as a part of the deterrence strategy.²² In

other words, these B-2 airstrikes can be said to have marked a historically significant turning point where such academic theory and actual combat operations converged.

The Operational Characteristics: Redefinition of Strategic Bombers

Furthermore, Operation Midnight Hammer can be seen as having redefined the strategic role of stealth bombers. B-2s were used in actual combat in the 1999 Kosovo conflict and the 2003 Iraq war,²³ but in recent years their role as a strategic weapon has diminished due to the rise of new technologies such as F-35s, drones, and hypersonic weapons.

However, what is surprising about the air strikes on this occasion is that all of the B-2s were able to bomb their designated targets as planned without being detected by Iranian radar and return home unscathed.

It can be evaluated that this proves the effectiveness of B-2s as a means of carrying out “deep strikes using non-nuclear weapons” and shows that strategic bombers are not outdated but can be the core of “deterrence using limited strikes.”

In other words, with the full deployment of the next-generation stealth bomber B-21 (“Raider”)—the successor to the B-2 scheduled for the late 2020s—looming,²⁴ these airstrikes by the B-2 can be positioned as a preliminary engagement anticipating its strategic significance.

Conclusion

The joint operation centered on B-2 bomber airstrikes, even with its full scope still unclear, vividly demonstrates that the nature of strategic bombing is undergoing significant transformation.

The concept of destroying underground facilities with non-nuclear weapons has been discussed in recent years by American scholars of strategic studies as a realistic option, and these arguments by the counterforce school of thought have become a theoretical pillar for realizing strategic deterrence capabilities without relying on nuclear weapons. This is precisely why the joint operation on this occasion can be seen as one example of how this military thought has been connected to real-world policy and management of operations.

It must be recognized that the background to the rapid execution of integrated operations lies in the operational planning based on the precise target lists the U.S. military constantly maintains, backed by its ready strategic power projection capabilities.²⁵ In other words, it is necessary to interpret the operation on this occasion not as an improvisation, but as one of the options that had been prepared in advance now being activated based on political judgment.

The operation has sometimes been described as cinematic,²⁶ but it should not be interpreted as staged but rather as being the result of the accumulation of highly theorized military thought and technologies. This is precisely why these kinds of examples of the deployment of air power to penetrate deep into enemy air defense zones and deliver decisive strikes have historical significance when it comes to anticipating the future nature of air operations.²⁷

The upcoming commentary will cover reports on China's countermeasures against the movements of these U.S. Air Force stealth bombers.

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