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## The B-1B Bomber

The B-1 evolved from a series of studies in the 1960s into a long-range conventional multi-role bomber that operates with precision and persistence. With the election of President Nixon in 1970, the initial development contract was awarded to North American Rockwell with the first of four B-1As taking flight in December of 1974. Initial plans called for production of 240 of the aircraft. During the ensuing four years, the B-1A flight test aircraft demonstrated sustained low altitude flight at 200 ft, high-speed flight with speeds up to Mach 2.2, and the successful launch of the B-1's primary weapon, the nuclear AGM-69A SRAM.

With the election of President Carter in 1977, the B-1A program was terminated due to cost growth and in deference to various other missile systems to fulfill the nuclear mission. However, flight testing of the four B-1A aircraft continued at Edwards Air Force Base, CA, validating the Westinghouse synthetic aperture radar and the offensive and defensive avionics systems.

On October 2, 1981, President Reagan announced that the Air Force would acquire 100 B-1Bs as part of their Strategic Modernization Program. The development contract was awarded to Rockwell International on January 20, 1982. Two of the B-1As were converted to B-1B prototypes and the first production B-1B flew on October 18, 1984. The total acquisition cost for the B-1B was set at \$20.5 billion for 100 aircraft, spares and support equipment.

The B-1B differed from the B-1A in several ways. The requirement for Mach 2.2 flight was reduced to Mach 1.25, simplifying the inlet and over-wing fairing structure. The maximum gross take-off weight was increased from 395,000 to 477,000 pounds and the radar cross section was reduced an order of magnitude.

The first B-1B rolled off of the assembly line in Palmdale, CA, on September 4, 1984 and was delivered to the Strategic Air Command in June, 1985. B-1B production

ramped up to four aircraft per month until the 100th and final B-1B rolled out of Palmdale on January 20, 1988 — on budget and ahead of schedule.

## **Basing**

Initially the B-1Bs were assigned to four Strategic Air Command Bases: Dyess AFB, TX; Ellsworth AFB, SD; Grand Forks AFB, ND; and McConnell AFB, KS. The B-1Bs were removed from Grand Forks and McConnell in 1994 and a squadron of B-1Bs was stationed at Mountain Home AFB, ID, as part of the Air Intervention Wing. B-1Bs were then assigned to the Kansas and Georgia Air National Guard with a squadron stationed at McConnell AFB, KS, and Robins AFB, GA.

In 2001, the U.S. Air Force decided to retire some of the B-1Bs and remove the aircraft from Mountain Home and the Georgia and Kansas Air National Guard bases. This has now been accomplished and the remaining 67 aircraft are consolidated at Dyess AFB, TX, and Ellsworth AFB, SD.

## **Conventional Mission Upgrade Program**

As the cold war began to thaw, the B-1B was transitioned out of its nuclear mission. The B-1B stood its last nuclear alert in 1997. In June 1994 the B-1B began an Operational Readiness Assessment that marked the beginning of the Conventional Munitions Upgrade Program.

This program was a phased approach to convert the nuclear bomber to a conventional platform. It was broken into four distinct blocks that included hardware and software modifications to incrementally increase the B-1B's conventional capability.

Block C was the first increment. In 1995, Boeing completed hardware and software enhancements to accommodate a range of conventional gravity weapons such as cluster bomb units. It certified high- altitude release of 84 Mk82 bombs and 30 Conventional Bomb Units from a new 10-carry bomb rack.

Block D incorporated GPS navigation, Joint Direct Attack Munitions (JDAM) anti-jam radios and the ALE-50 towed decoy countermeasure. This capability became operational in 1999

Block E incorporated new mission computers, Wind Compensated Munitions Dispensers (WCMD), the Joint Stand-off Weapon (JSOW), and the Joint Air to Surface

Stand-off Missile (JASSM). Block E also gives the B-1B the unique flexibility to employ three types of weapons simultaneously. This capability became operational in 2005.

Block F was scheduled to add a new radar warning receiver and electronic countermeasures system suite with a fiber optic towed decoy allowing the B-1B to penetrate post 2010 threat environments. Development issues with the Government furnished hardware caused this new defensive capability to be deferred indefinitely.

Future capabilities include the integration of new digital radios, color cockpit displays, situational awareness display and sensor improvements as well as utilizing the B-1Bs external carriage capability. These upgrades are currently in development and will allow the B-1B to be a lethal node in the DoDs digital battlefield. Other enhancements are in the planning stages that will maintain the B-1Bs combat relevance for several more decades.

## **Combat Use**

The B-1B was first used in combat in December of 1998 in operation Desert Fox where the aircraft penetrated Iraqi air defenses to destroy Republican Guard barracks. In 1999 B-1s equipped with the Block D modification supported Operation Allied Force in Kosovo. Six aircraft accounted for 2% of the combat sorties yet they dropped more than 20% of the total tonnage in the conflict. In operation Enduring Freedom, B-1Bs accounted for 5% of the strike sorties into Afghanistan and dropped more than 70% of the precision-guided JDAM weapons. In Operation Iraqi Freedom the B-1Bs demonstrated similar performance with 1% of the combat sorties yet 22% of the guided weapons. The range, speed, payload and persistence of the conventionally equipped B-1Bs allowed the aircrews to perform multiple missions within a single sortie. Consequently the aircraft was in such high demand it was dubbed the Most Valuable Plane "MVP" of the conflict.

## **Records**

The B-1A received the prestigious Collier trophy in 1976. The B-1B holds 100 world records for speed, payload and distance. The National Aeronautic Association recognized the B-1B for completing one of the 10 most memorable record flights for 1994. It set 50 new records at the Edwards Air Force Base Air Show in 2003.

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