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U.S. Strategic Bombers

The U.S. Air Force deploys three strategic (or heavy) bombers—the B-52, B-1B, and B-2—to carry bombs or air-to-surface missiles for conventional and nuclear missions. Bombers carry heavy ordnance loads across long distances, for long periods of time, to strike adversary targets of tactical and strategic importance. The Air Force is also developing a new B-21 strategic bomber as the next-generation stealth aircraft to conduct nuclear missions and as a component of a conventional family of systems including electronic attack, communications, and other systems. Congress authorizes and appropriates funds for, and conducts oversight of, Department of Defense (DOD) and Air Force development, acquisition, maintenance, and manning of the U.S. bomber fleet, as well as the nuclear weapons carried by these aircraft.

Conventional and Nuclear Missions

The role of bombers has evolved over time. During World War II, the United States developed new bomber types and produced tens of thousands of bombers. A combined conventional bomber offensive with the United Kingdom from 1942 to 1945 aimed to destroy the German military industrial and economic system. In August 1945, on the orders of U.S. President Harry Truman, U.S. B-29 heavy bombers delivered the “only nuclear weapons ever used in combat” on targets in Japan. During the Cold War, reports about Soviet bomber prowess spurred the United States to increase defense spending and build up its bomber fleet.

Today, bombers are an essential component of one of the U.S. Air Force’s core conventional functions: air superiority, or the degree of control of an airspace that allows for operations without interference from adversarial air and missile threats. Bombers aid the air superiority mission by providing the ability to carry out long-range precision strike.

The 2022 U.S. Nuclear Posture Review (NPR), a periodic congressionally mandated review of U.S. nuclear policies, reaffirmed bombers as an integral part of the U.S. nuclear “triad” that also includes long-range land-based intercontinental ballistic missiles (ICBMs) and long-range submarine-launched ballistic missiles. The 2018 NPR stated that “heavy bombers are the most flexible and visible leg of the triad.” The 2010 NPR stated that “heavy bombers can be visibly forward deployed, thereby signaling U.S. resolve and commitment in crisis.”

The United States has periodically stationed bombers in allied countries, conducted continuous patrols, or maintained bombers on alert status. In 2018, Air Force Global Strike Command began Bomber Task Force deployments, which involve bomber flights to allied nations around the world to take part in patrols and exercises to “assure allies and deter adversaries.” Since 2020, the

command has refined the use of Agile Combat Employment of bombers to expand the number of bases from which bombers can operate, to include demonstrating the ability to land at civilian airfields.

The U.S. Strategic Bomber Fleet

B-52 Stratofortress

The B-52, which entered service in 1955, is a long-range heavy bomber that can fly 8,800 miles without refueling. Known as the Stratofortress, the B-52 can conduct conventional and nuclear bombing missions (or, it is dual-capable), offensive counter-air operations, and maritime surveillance and mine-laying operations. The B-52 can carry 70,000 lb. of ordnance. Boeing built 744 B-52s, delivering the last H-model B-52 in 1962, and the Air Force plans to extend the life of the remaining 74 aircraft into the 2040s. The aircraft are based at Barksdale AFB in Louisiana and Minot AFB in North Dakota.

According to DOD, 46 B-52 aircraft are capable of carrying nuclear weapons. These nuclear-capable B-52s are equipped to carry air-launched cruise missiles (ALCMs) armed with the W80-1 warhead. The Air Force has stated that it is planning to replace the aging ALCMs with a new advanced Long-Range Standoff (LRSO) cruise missile. The Air Force noted its plans to buy 1,087 missiles and has included \$834 million for the development of the LRSO in its FY2025 budget request. The Department of Energy’s National Nuclear Security Administration (NNSA) is extending the life of the W80 warhead to provide a warhead for the LRSO. NNSA requested \$1.2 billion for this W80-4 life extension program (LEP) in its FY2025 budget request. The FY2025 National Defense Authorization Act (NDAA) (P.L. 118-159) fully funds the LRSO and the W80-4 LEP. Section 1626 of the law permits the Air Force to reconvert for nuclear missions B-52 bombers that were modified to carry out conventional-only missions in accordance with the U.S.-Russian 2010 New START Treaty and mandates an Air Force report on the cost of a one-third increase in the LRSO planned purchase.

The Air Force is in the midst of two B-52 upgrade projects. The B-52 Commercial Engine Replacement Program (CERP) seeks to create a new version of the aircraft—the B-52J—with eight Rolls Royce F-130 engines. The service anticipates modernizing 51 B-52s by FY2032 and the remaining 23 aircraft in FY2033. The B-52 Radar Modernization Program (RMP) is testing updates to the B-52 radar system so it will track moving surface and air targets. According to DOD, improved data analytics are helping with hypersonic weapons tracking.

B-1B Lancer

The B-1B was designed to be a dual-capable bomber and the successor to the B-52. DOD declared that the B-1B had reached initial operational capability in 1986. During the 1990s, under the U.S.-Russian Strategic Arms Reduction Treaty (START I), the United States converted the B-1B to conventional missions. The B-1B can carry a 75,000 lb. payload—the largest conventional weapons load in the U.S. Air Force’s inventory, which includes general purpose and precision-guided munitions. The 7th Bomb Wing based at Dyess AFB, Texas; and the 28th Bomb Wing from Ellsworth AFB, South Dakota, operate the B-1B. The Air Force has 45 B-1Bs, down from an original fleet of 100. Congress has written provisions to limit retirement of the B-1, which is sustained by Boeing. Section 132 of the FY2025 NDAA provides for the transfer of B-1s to Grand Forks AFB, in North Dakota, while new runways are being constructed at Ellsworth AFB for use by the incoming B-21 Raider. The B-1B conducts a variety of bomber task force and training missions.

B-2 Spirit

The B-2 is a dual-capable multi-role heavy bomber, powered by four engines. It is considered a stealthy, or low-observable aircraft, in that its design and materials limit its ability to be detected by enemy radar. For example, the B-2’s flying wing design, or triangular shape, composite materials, and coating reduce its radar cross section so it can penetrate air defenses. It can carry a payload of 40,000 lb. The B-2 made its first flight in 1989 and began initial operations in 1997. The Air Force has 20 B-2 bombers based at Whiteman AFB in Missouri, though it had indicated that it plans to retire one B-2 in FY2025 after a 2022 accident rendered it too expensive to repair, leaving 19 B-2 aircraft in the force.

According to DOD, all B-2s are nuclear-capable. The B-2 can carry B61 and B83 nuclear gravity bombs, but it is not equipped to carry cruise missiles. In 2025, NNSA said that it completed the B61-12 LEP. In 2023, DOD said that NNSA would develop a new B61-13 bomb to give the President “additional options against certain harder and large-area military targets” as it “works to retire” the B83.

The Air Force continues to modernize the B-2. In 2024, Northrop Grumman won a contract of up to \$7 billion through 2029 to maintain and improve B-2 stealth and communications capabilities, engines, and displays.

B-21 Raider

The B-21 is a dual-capable penetrating-strike stealth bomber, currently in development. The B-21 is similar to the B-2, but slightly smaller, with a distinctive beak domed center. The Air Force has designed the B-21 with an open systems architecture to allow for faster new software integration. The Air Force says the B-21 will be able to “employ a broad mix of stand-off and direct-attack munitions.” The B-21 is expected to carry the LRSO and gravity bombs. Air Force officials have reportedly said the B-21 could fly without a human crew but that the current focus is on crewed operations. The Air Force has indicated it plans to buy at least 100 B-21 aircraft that would begin entering the force in the mid-2020s.

The Air Force has projected that B-21 would cost \$550 million apiece in 2010 dollars, based on the purchase of 100 aircraft. The B-21 has flown more than 200 sorties on a “flying test bed.” Prime contractor Northrop Grumman in late 2024 received a second low-rate initial production award. The Air Force included \$5.3 billion for this new bomber in its FY2025 budget request. The FY2025 NDAA authorized full funding for the B-21 at \$2.7 billion for research, development, test, and evaluation.

Potential Issues for Congress

Sizing the B-21 fleet and the Air Force budget. The 2023 Final Report of the Congressional Commission on the Strategic Posture of the United States (Strategic Posture Commission, or SPC) recommended purchasing additional B-21 aircraft and supporting tanker aircraft. Some outside organizations say the Air Force needs at least 200 stealth bombers—rather than the planned 100. Some also cite the high operational tempo of Bomber Task Forces, especially for the aging bomber fleet, as a reason for future increased bomber acquisition. Former Air Force Secretary Frank Kendall reportedly said that buying B-21s at a faster rate than initially planned is worth considering. In the FY2025 request, DOD had projected an FY2026 budget of \$876.8 billion. Secretary of Defense Pete Hegseth has reportedly asked the military services to propose 8% reductions from their planned FY2026 budgets, though he also stated that nuclear modernization would be exempt from these cuts. Members may decide whether or not to authorize and appropriate funding for B-21s and, if so, how many.

Re-alerting bombers. Unlike during the Cold War, U.S. bombers do not carry nuclear weapons day-to-day. Some Air Force officials have said that re-alerting bombers could increase demands on manpower and infrastructure. Section 1651 of the FY2022 NDAA (P.L. 117-81) requested the Air Force study the costs and impacts of re-alerting “in the absence” of ICBMs. The SPC report recommended that the Air Force plan and prepare for some “future” U.S. bombers to “be on continuous alert status.” Members may consider whether the study mandated in the FY2022 NDAA provides sufficient information on the costs and impacts of alerting.

Base hardening. Recently, some outside analysts and Air Force officials have raised the possibility of base hardening to improve protection against potential missile strikes with improved logistics and reinforced shelters. Some Members of Congress have argued for such hardening and “passive defenses,” including distributing forces, camouflage, and concealment at Air Force bases in the Indo-Pacific. Members may consider whether or not to provide funding to bolster the infrastructure at its main operating bases and whether to also do so at smaller airfields to support the dispersion of forces. To add resilience to forward bases in the Pacific, some retired military officials say that the Air Force may need more power generation, storage, and distribution and improved connectivity and logistics.

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