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Long-Range Bomber Facts: Background Information

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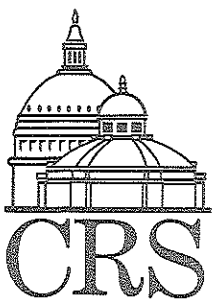

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LONG-RANGE BOMBER FACTS: BACKGROUND INFORMATION

SUMMARY

The U.S. Air Force has spent over $100 billion to develop, produce, and modernize the planes currently comprising its long-range bomber fleet -- the B-52, the B-1B, and the B-2. Among the costliest of weapon systems, these aircraft have filled the need for a recallable and flexible way of quickly delivering heavy destruction to a far-away target.

Since the end of the Cold War, the purpose of these bombers has changed from primarily a nuclear war-fighting mission to primarily conventional missions. Although regional, non-nuclear conflicts are presumably much more likely to occur than is nuclear war, nevertheless the Air Force has greatly reduced the size of its planned long-range bomber fleet, partly in response to a call for cost-cutting across the board.

Congress, which had long been in the habit of providing almost all of the funding requested for these bombers, has in recent years cast a more skeptical eye on bomber budget requests. By setting up conditions to be met before certain funds can be released, the Congress has been attempting to ensure that the bombers can do what they need to and that ever-escalating costs are not inversely related to the quality of the product.

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ROLE OF LONG-RANGE BOMBERS IN U.S. MILITARY

Until June 1, 1992, when an Air Force reorganization came into effect, most of the Nation's long-range bombers -- the B-52, the B-1B, and the B-2 -- were under the control of the Strategic Air Command (SAC). (In late 1987, two squadrons of B-52s were removed from the nuclear role to serve a purely conventional mission.) They had as their primary mission the deterrence of a nuclear war. As the air-breathing leg of the U.S. strategic triad, the manned bombers were designed as second-strike, retaliatory forces that would deliver nuclear warheads into Soviet territory.

The Cold War-era plan for the U.S. long-range bomber fleet envisioned over 400 long-range bombers to stay ahead of what were perceived as constant improvements in Soviet air defenses. The B-1 was the first new bomber planned by the Air Force, but was cancelled by President Carter in 1977. When the B-2 program was begun in 1978, it reportedly called for production of 165 B-2s at a total cost of $36 billion (in FY1980 dollars). The B-2s would serve as penetrating bombers that would have a great assurance of succeeding in their mission because they would be very difficult to detect by enemy air defenses. The B-52s would stay outside enemy boundaries and deliver standoff nuclear weapons (air-launched cruise missiles).

When President Reagan resurrected the B-1 program as part of his strategic modernization effort, the plan for new long-range bombers was expanded by 100 aircraft. The B-1 at that time was described as an interim penetrating strategic bomber, bridging the gap between the B-52 and the B-2, and as a conventional weapons platform of superior abilities that could perform bombing, mine laying, maritime support, and show of force functions. Because there was considerable controversy surrounding the B-1, Congress required, and the President delivered, a formal certification that the entire program would not cost more than $20.5 billion (in FY1981 dollars). The numerous problems subsequently encountered by the B-1B have been attributed by some, at least partly, to the congressionally-imposed cost cap.

No such cap was imposed on the B-2, which has grown greatly in cost even as its planned production has shrunk. In early 1986, the Air Force planned to produce 132 B-2s for a total cost of $58.2 billion ($440 million per plane). By February 1991, the production plan was cut to 75 at a total cost of $64.8 billion ($863 million per plane); and in 1993, the planned buy of 20 B-2s is anticipated to cost a total of $44.4 billion ($2.2 billion per plane).

The main military developments changing the perceived need for many long-range bombers were the strategic arms reduction treaties between the United States and the Soviet Union, the end of the Cold War, and the breakup of the Soviet Union. At the same time, domestic economic developments within the United States called for a reordering of priorities and a reduction in military

spending. Since the long-range bombers have traditionally been among the most expensive systems, they were ripe targets for cost-reducers. Not only were the plans for B-2s reduced, but more B-52s were slated to be retired, and there has been talk of relegating the B-1B to retired status.

The new Air Combat Command (ACC), a consolidation of SAC and Tactical Air Command, joins the bomber force to the other power projection assets of the Air Force -- fighters, electronic warfare and reconnaissance aircraft, and command and control platforms like AWACS and JSTARS. According to the Air Force, this restructuring reflects an integrated way of thinking about airpower. The role of the long-range bombers within the scheme is to combine mass (large payloads), reach (long range), and immediacy (quick response) with the ability to conduct precision strikes with non-nuclear weapons to serve in future regional operations. With the closing of more U.S. bases overseas, it is likely that dependence on long-range bombers will increase. Although their conventional missions, with advanced conventional munitions, are now being emphasized and planned for, many bombers will also retain their nuclear war-fighting functions.

Features and Performance Characteristics Of U.S. Long-Range Bombers: B-52, B-1B, and B-2

Feature	B-52	B-1B	B-2
Inventory (1993)	148	96	6 (all in test program); first of 20 operational B-2s del. Dec.'93
Weight, empty (lb.)	168,400 (G) 172,700 (H)	192,000	100,000-110,000
Maximum takeoff weight (lb.)	488,000 (G) 488,000 (H)	477,000	400,000
Payload (lb.)	50,000	75,000 internal; 59,000 external	50,000 (Jane's 92-93); 40,000 (AF)
Crew	5	4	2
Speed	at high altitude, 595 mph (Jane's 91-92)	supersonic at altitude; high subsonic at low level (AF Magazine 5/93)	high subsonic (AF)
Altitude	service ceiling 55,000 ft.	low level penetration, 200 ft.; high altitude cruise, 42,000 ft.	service ceiling 50,000 ft.
Max. unrefueled range (dependent on altitude profile and load)	7,500 mi. G 10,000 mi. H (Jane's 91-92)	7,455 mi. (Jane's 89-90)	6,000 mi. (AF) 7,255 mi. (AF Magazine, 5/93)

U.S. BOMBER PROGRAMS

B-2 BOMBER

The B-2 Advanced Technology Bomber or "stealth" bomber was originally designed to penetrate Soviet territory to attack targets at close range during a nuclear war. The B-2 incorporates "stealth" technology (involving radar deception and radar-absorbing materials) intended to make it very difficult for enemy air defenses to detect. The prime contractor for the program is Northrop Aircraft Group and production facilities are in Palmdale, California. In 1991, the Air Force announced that testing had revealed that the B-2 was not as stealthy as had been anticipated; subsequent announcements have indicated that the problems have been identified and are being solved. Since the reduction of the Soviet nuclear military threat and the demonstrated success of stealth technology during the Persian Gulf War, the Air Force has emphasized the ability of the B-2 to execute conventional missions. FY 1993 funding for the B-2 was to complete the buy of 20 aircraft; FY94 funding is to begin to provide for adjustments necessary to maximize the B-2's conventional capability.

Program Status and Details

The B-2 has been in full-scale development since 1981. Northrop Aircraft Group (located in California) is the prime contractor, with Boeing Aerospace and LTV (Vought) as key members of the development team. A full-scale engineering mock-up of the B-2 was completed in early 1986, a prototype was rolled out on November 22, 1988, and the first flight of a B-2 prototype occurred July 17, 1989.

Six flight-test B-2 bombers have been funded through the research and development (R&D) appropriations of the B-2 program: All six have been delivered and joined the flight test program. Five of these 6 R&D planes will eventually join operational wings. Two additional full-scale development (nonflying) air frames have been delivered for ground tests. The seventh aircraft is considered the first production aircraft, but will be devoted to electromagnetic compatibility (EMC) testing after final assembly. The eighth aircraft will be completed before EMC tests on aircraft #7 are concluded, and is therefore the first operational bomber the Air Force will receive, in December 1993.

B-2 Cost Data

Program Acquisition Cost, Air Force estimate: $44.4 billion for 20 B-2s
Program Unit Cost, Air Force estimate: $2.2 billion

Table 1. B-2 Appropriations, By Year
($ Millions)

Year	RDT&E	Procurement	(Quantity)	MilCon	Total
FY1988 and prior	13,220.5	3,809.7	(5)	102.1	17,132.3
FY1989	2,176.5	3,036.9	(3)		5,293.1
FY1990	1,881.4	2,329.0	(2)	111.3	4,321.7
FY1991	1,750.7	2,349.3	(3)	104.1	4,204.1
FY1992	1,563.0	2,800.0	(1)		4,363.0
FY1993	1,261.4	2,686.6			3,948.0
Total	**21,853.5**	**17,011.5**		**396.2**	**38,761.2**

For FY1994, the Air Force requested $ 890 million for B-2 procurement and $790 million for RDT&E.

B-1B BOMBER

The B-1B strategic bomber was intended as a replacement for the aging fleet of B-52s that had long been the mainstay of the Strategic Air Command, as well as a multipurpose bomber that could be used for a variety of non-strategic missions. Procurement funding was completed in FY1986, and delivery of the 100-aircraft fleet of B-1Bs was completed by April 1988 (the fleet now numbers 96, after 4 crashes). The Initial Operational Capability (IOC) date was October 1986. The B-1B program has cost $27.7 billion during FY1981-1993. The unit cost of a B-1B (RDT&E + procurement/96) is around $288 million (in then-year dollars). The B-1B is currently based at the following facilities: Grand Forks AFB, North Dakota; Ellsworth AFB, South Dakota; McConnell AFB, Kansas; and Dyess AFB, Texas. Since reorganization of the Air Force and the new emphasis on conventional missions for all the heavy bombers, current and future B-1B funding concentrates on enhancements and modifications to enable the B-1B to carry a variety of conventional munitions. Congress explicitly endorsed the exploration of conventional options for the B-1B in the legislation authorizing funds for FY 1992. Problems with the B-1B's defensive avionics system as well as other defects continue to be of concern, and Congress required progress reports on solving these problems in the FY1992 legislation. For FY1993, Congress appropriated about $50 million less than the Administration had requested for the B-1B program.

B-1B Cost Data

Cost goal certified by President: $20.5 billion (FY1981 dollars)
Program acquisition cost (current AF estimate): $20.88 billion in FY1981 dollars; $30 billion in FY1994 dollars
Unit cost: $208.8 million in FY1981 dollars; $300 million in FY1994 dollars
Appropriations for B-1A program, FY1965-FY1981: $4.2 billion

(The B-1A program, as originally conceived, called for production of some 244 Advanced Manned Strategic Aircraft to replace the B-52s. A total of three prototypes had been produced when President Carter cancelled the program in 1977, having decided that the job of bombing the Soviet Union in the event of nuclear war could be accomplished by standoff aircraft carrying air-launched cruise missiles, until development of a nuclear penetrating bomber with stealthy features -- the B-2. Although formally cancelled, the B-1 program was kept functionally alive by continued funding of work on a Long-Range Combat Aircraft, which evolved into the B-1B.)

Table 2. B-1B Appropriations, By Year
($ millions)

Year	RDT&E	Procurement	(Quant.)	Milcon	Total
FY1981	260.1	---		---	260.1
FY1982	291.9	1,801.0	(1)	---	2,092.9
FY1983	753.5	3,868.1	(7)	---	4,621.6
FY1984	749.9	5,571.7	(10)	5.9	6,327.5
FY1985	465.0	7,071.0	(34)	95.7	7,631.7
FY1986	265.1	4,913.6	(48)	211.0	5,389.7
FY1987	118.7	---		50.0	168.7
FY1988	375.7	---		1.3	377.0
FY1989	221.6	24.5		7.0	253.1
FY1990	---	51.0		---	51.0
FY1991	---	90.6		---	90.6
FY1992	1.6	160.0		---	161.6
FY1993	86.4	213.2		---	299.6
Total	**3,589.5**	**23,764.7**		**370.9**	**27,725.1**

For FY1994, the Administration requested $162.5 million for procurement and $93.5 million for RDT&E.

B-52 BOMBER

During the decades of the Cold War, most B-52s were dedicated primarily to the deterrence of nuclear war, although B-52 Gs were used in the non-nuclear conflicts in Vietnam and in the Persian Gulf. The B-52 has absorbed substantial amounts of funding as it has been modernized over the years; over $41 billion has been spent for development, procurement, modernization, and service life extension of the B-52, which entered service in the mid-1950s. A total of 744 B-52 aircraft with an average unit cost of $6.1 million were produced in eight configurations between 1954 and 1962; most are no longer in

the active inventory. Ninety-seven B-52 Gs and 96 B-52Hs were equipped with air-launched cruise missiles (ALCM-Bs). Most of the B-52s, however, will be removed from the inventory over the next few years: DOD plans as of the beginning of 1992 called for around 100 B-52s to remain in the strategic bomber force as of FY1993 and for fewer than 40 B-52Gs to be relegated to a conventional role. The Bomber Road Map (summer 1992) stated that all B-52Gs were to be retired, and their conventional role absorbed by B-52Hs, which have more powerful engines, cost less to operate, and have a greater range. For FY93, Congress appropriated about $35 million more than had been requested for the B-52.

Table 3. B-52 Bomber Appropriations, by Year
($ millions)

Year	Amount
FY1981	476.4
FY1982	596.5
FY1983	622.2
FY1984	539.4
FY1985	488.7
FY1986	464.4
FY1987	397.2
FY1988	238.7
FY1989	215.9
FY1990	157.5
FY1991	58.6
FY1992	35.1
FY1993	98.7
Total	**4,389.3**

For FY1994, the Administration requested $47.4 million for B-52 procurement.

LONG-RANGE BOMBERS AND CONGRESS

Although Congress has consistently granted the vast bulk of requested funding for the long-range bomber programs, both House and Senate Armed Services have in recent years set numerous requirements for the Air Force to meet regarding the B-1 and B-2 programs. (The B-52 program has not been the subject of controversy, having performed well in conflicts from Vietnam to the Persian Gulf. Modernization and upgrading of the B-52's structure and capabilities have continued throughout the B-1/B-2 period).

Most of the congressionally-imposed requirements have arisen from concerns about the adequacy of the bombers' respective testing programs, but recently the committees have questioned the underlying reasons for the bomber programs' very existence. During the Cold War period, the overriding and unquestioned need for an effective nuclear deterrent drove the B-1 and B-2 programs forward with not much more than cosmetic changes imposed by Congress. Since the end of the Cold War, however, Congress has demanded from the Administration a convincing rationale for continuing to spend large sums for these expensive aircraft.

The information that follows includes all House and Senate floor votes on the bombers through the FY93 defense budget process.

A CHRONOLOGY OF KEY EVENTS AND CONGRESSIONAL VOTES ON THE B-52, B-1, AND B-2 BOMBER PROGRAMS

09/18/92 --- The Senate rejected (45-53) a Leahy amendment to S.3114, FY 93 Defense Authorizations, that would have eliminated $2.7 billion for the B-2, terminating the program at 15 aircraft.

07/02/92 --- The House rejected (173-248) a Penny amendment to H.R. 5504, FY 93 Defense Appropriations, to reduce the Air Force procurement account by $2.7 billion, the amount earmarked to purchase four more B-2 bombers.

06/05/92 --- The House rejected (162-212) an Andrews of Maine amendment to H.R. 5006, FY 1993 Defense Authorizations, that sought to terminate the production of B-2 bombers after the completion of the 15 previously funded, therefore reducing the FY1993 authorization by $2.7 billion.

09/25/91 --- The Senate adopted (by voice vote) a Levin amendment to H.R. 2521, FY1992 Defense Appropriations, to further limit the use of funds for B-2 procurement until the Secretary of Defense assures Congress that the original radar cross section performance objectives of the B-2 have been successfully demonstrated from flight testing. The Senate rejected Division I of a Sasser amendment, to reduce funding for the B-2 (it was tabled by a 51-48 vote).

09/11/91 --- The Air Force announced that the B-2 had not performed as well as expected in a July 26 test of its radar evading capability.

08/01/91 --- The Senate rejected (42-57) a Leahy amendment to S. 1507, FY1992 Defense Authorizations, to eliminate the bill's provision allowing for production of 4 B-2 bombers, stopping production at the 15 planes already funded. The amendment would have allowed for continued RDT&E.

04/26/90 --- After a Major Aircraft Review, Secretary of Defense Cheney announced a revised procurement plan for the B-2: 75 aircraft at a total cost of $61.1 billion.

11/17/89 --- The Senate rejected (29-68) a Cranston/Sasser/Wirth amendment to H.R. 3072 to delete all production funding for the B-2.

09/26/89 --- The Senate rejected (29-71) a Leahy amendment to H.R. 3072 to cut off funding for production of additional B-2s.

09/01/89 --- The Senate adopted (93-7) a Cohen amendment to S. 1352 expressing the sense of the Senate that current funding of low-rate B-2 production does not constitute a commitment to support future production of B-2s.

07/31/89 --- The Senate adopted (by voice vote) a Levin amendment to S. 1352 to ensure substantially stronger contractor guarantees for the B-2.

07/26/89 --- The House rejected (176-244) a Skelton amendment to H.R. 2461, FY1990-1991 Defense Authorization bill, to authorize $3.9 billion for B-2 production as long as DOD certifies meeting the original performance objectives and establishment of cost reduction initiatives. The House also rejected (144-279) a Kasich/Dellums amendment to terminate production of the B-2 at 13 aircraft. The House then agreed to (257-160) an Aspin/Synar amendment to reduce by $470 million B-2 procurement funding.

07/25/89 --- The Senate adopted (by voice vote) a Kennedy amendment to S. 1352, FY1990-1991 Defense Authorization bill, to require a DOD report on the implications of a reduction in the planned procurement of 132 B-2 bombers. The Senate also adopted (98-1) a Nunn/Warner amendment that would authorize $4.4 billion of the $4.7 billion requested for the B-2, with restrictions aimed at assuring that the aircraft will perform as intended.

07/17/89 --- The B-2 made its first flight, from Palmdale, CA, flying for 2 hours before landing at Edwards Air Force Base.

07/12/89 --- The first open hearing on the B-2 was held by the House Armed Services Committee.

06/23/89 --- The Air Force released B-2 annual budget projections and a new total cost: $70.2 billion in then-year dollars.

12/16/88 --- The Air Force announced its latest cost estimate for the B-2: $42.5 billion in FY1981 dollars, or $68.1 billion in then-year dollars.

05/18/87 --- House rejected (191-206) Boxer amendment to H.R. 1748 to delete from the bill $376 million for B-1B RDT&E.

08/09/86 --- Senate agreed (voice vote) to Byrd amendment to FY1987 DOD authorization bill specifying that none of the funds for ATB be used for any other purpose, and that no funds be used for any purpose related to deployment of more than 100 B-1Bs.

06/03/86 --- The Defense Department released a "fact sheet" on the B-2, giving figures of $36.6 billion and $277 million (in FY1981 dollars) for the total and unit prices, respectively.

02/04/86 --- A report from the Defense Department on the total cost of the B-2 was delivered to Congress. The cost figure was classified. It was later revealed that the cost figure was $58.2 billion in then-year dollars, or $440 million per plane.

07/30/85 --- The conference report of the FY1986 defense authorization bill directed the Secretary of Defense to provide Congress with an estimate of the total program cost of the B-2 by Feb. 1, 1986.

05/23/84 --- The House rejected (163-254) a Dellums amendment to H.R. 5167 to delete all funds for B-1B procurement.

11/01/83 --- The House rejected (175-247) an Addabbo amendment to H.R. 4185 to delete $438.7 million to begin multi-year procurement of the B-1B.

07/14/83 --- The Senate tabled (56-41) a Nunn amendment to S. 675 to slow down B-1B production rate and prohibit multi-year procurement.

07/13/83 --- The Senate tabled (68-30) a Kennedy-Bumpers-Hollings amendment to S. 675 to delete $7 billion for B-1B production and R&D.

06/15/83 --- The House rejected (164-255) a Dellums amendment to H.R. 2969 to delete funding for B-1B.

06/14/83 --- The House rejected (171-252) a McCloskey amendment to H.R. 2969 to prohibit multi-year procurement of the B-1 bomber.

06/09/83 --- The Senate adopted (52-38) a Stevens amendment to H.R. 3069 providing $185 million for B-1B multi-year procurement.

07/22/82 --- The House rejected (142-257) a Dellums amendment to H.R. 6030 to delete procurement authorization for B-1B.

01/25/82 --- Pursuant to P.L. 97-114, the President transmitted to Congress his certification of B-1B cost estimates (H.Doc. 97-127) stating that acquisition of 100 B-1B aircraft is feasible within the $20.5 billion budget estimate by 1986.

12/03/81 --- The Senate rejected (28-66) a Hollings amendment to H.R. 4995 to delete funding for the B-1B.

11/18/81 --- The House rejected (142-263) an amendment to H.R. 4995 to delete $1.8 billion in funding for the B-1B.

10/02/81 --- President Reagan announced his strategic modernization plan, including pursuit of a "2-bomber" option -- B-1Bs and B-2s.

08/22/80 --- Secretary of Defense Brown announced the existence of a "Stealth" technology program that "enables the United States to build manned and unmanned aircraft that cannot be successfully intercepted with existing air defense systems." crsphpgw