The B-47 *Stratojet* Association

Varients

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The B-47 *Stratojet* Association

XB-47

The XB-47 46-065

The Boeing B-47 Stratojet was the first swept-winged jet bomber built in quantity for any air force, and was the mainstay of the medium-bombing strength of the Strategic Air Command throughout the 1950s. A total of 2042 Stratojets were built, making the B-47 program the largest American bomber project since the end of the Second World War.

The size of the crew (three men) was unusually small for an aircraft of the size and complexity of the B-47, with the three-member crew having to confront more than three hundred gauges, dials, switches, and levers. The B-47 went through a long gestation period during which many problems had to be fixed, and it took a long time before the Stratojet could be considered as being combat-ready. The early service of the B-47 was marked by frequent crashes and accidents, and the plane got a reputation as a crew-killer. Although there was nothing intrinsically wrong with the Stratojet, the B-47 was relatively difficult to land and terribly unforgiving of crew mistakes or inattention. Fifty-five percent of B-47 accidents were traced to human error, either by aircrews or maintenance personnel. It took a long time before more effective crew training was able to reduce the accident rate to a more acceptable level. By 1954, training had become sufficiently effective that the B-47 now had the lowest accident rate of any jet aircraft. Nevertheless, the B-47 never outlived its early reputation as a crew-killer. As veteran Stratojet pilot Brig. General Earl C. Peck observed in 1975, the B-47 was often admired, respected, cursed or even feared, but almost never loved.

The origin of the B-47 Stratojet can be traced back to the Second World War. In June of 1943, an informal USAAF request led several aircraft manufacturers to begin studies of multi-jet aircraft for fast photographic reconnaissance or medium bombing missions. On November 17, 1944, the USAAF issued formal requirements for a jet-powered medium bomber with a range of 3500 miles (3041 nautical miles), a service ceiling of 45,000 feet, and a maximum speed of 550 mph (478 knots).

Even before the USAAF began its study, Boeing had been working on the adaptation of large aircraft to jet propulsion. The initial Boeing study was the Model 424, which was essentially a scaled-down B-29 with four jet engines paired in two nacelles mounted underneath the wing.

However, wind tunnel testing proved that this engine arrangement was unsatisfactory. In December of 1944, Boeing engineers went back to the drawing board and came up with the Model 432, in which all four engines were moved inside the main fuselage to improve the efficiency of the wing. The engines were located right over the main fuel tank area of the fuselage and were fed by bulbous air intakes located beside the cockpit section. The engines exhausted

via tailpipes located on top of the rear fuselage. The aircraft still resembled the B-29 design, but with a much thinner wing.

The USAAF was sufficiently impressed with this design that they awarded Boeing a Phase I study contract for the Model 432 proposal. The project was assigned the designation XB-47. At the same time, contracts were awarded to North American for the XB-45, Convair for the XB-46, and Martin for the XB-48.

The configuration of the XB-47 was soon to undergo a drastic change. Just after VE-Day in May of 1945, the US Army's Scientific Advisory Group headed by the famous aerodynamicist Theodor von Karman was allowed to visit German aircraft factories and aeronautical research facilities to see if any of the innovations developed there could be incorporated into American designs. Boeing's chief aerodynamicist, George Schairer, accompanied the group. One of the items that was discovered was the results of some German research dating back to the mid-1930s on the use of swept-wings to improve the performance of high-speed aircraft. These studies confirmed independent studies carried out by NACA in the USA. The use of sweep angles as high as 45 degrees enhanced high-speed performance by delaying the formation of shock waves as the aircraft neared the speed of sound.

Word about the German research on swept wings was flashed back to Seattle, and Boeing engineers immediately stopped work on the straight-winged XB-47. Wind tunnel tests confirmed the essential validity of the German findings, and work began on a swept-winged version of the XB-47.

Early in September of 1945, Boeing was ready with the first swept-wing design for the XB-47, which was designated Model 448 by the company. It retained the fuselage of the Model 432 but featured a thin wing swept back at an angle of 35 degrees at quarter chord, and incorporated two more engines added in the extreme tail for a total of six. The other four engines were still mounted inside the upper fuselage, but were now fed by intakes cut into the extreme nose and exhausted over the top of the wing. The USAAF felt that housing engines inside the fuselage constituted a fire hazard, and preferred designs that incorporated externally mounted engines that would be easier to maintain or replace. In October of 1945, Boeing engineers returned to the drawing board and came up with the Model 450-1-1, which carried six jet engines mounted in pods - 2 pairs in strut-mounted inboard nacelles suspended underneath the inner wing and single units in pods attached to the wingtips. The USAAF liked the change, and approved the Model 450-1-1 in October of 1945.

In November of 1945, the outboard engines were moved from the wingtips to pods underneath the outer wings 8 feet from the tip. The wingspan was increased to 116 feet. In December of 1945, the USAAF endorsed Boeing's proposal to build two flyable XB-47s. They would initially be built without any tactical equipment. In April of 1946, two XB-47 prototypes were ordered.

The XB-47 mockup was completed, inspected, and approved in April of 1946. Nevertheless, the Mockup Committee suggested some changes in the nose compartment, pilot and co-pilot seating, and landing gear arrangement.

Work on the actual prototype began in June of 1946. However, progress was hampered by problems with the design of the landing gear, control surfaces, as well as bottlenecks in the power plant installations. The thin "Middle River Stump Jumper" wing made it impossible to suspend a landing gear from the wing or retract a wheel into it. The problem was solved by the installation of a tandem two-wheel landing gear that retracted into the fuselage. With both main two-wheel landing gear trucks on the fuselage centerline, a pair of outrigger wheels that retracted into the inboard engine nacelles were added to achieve ground stability. This landing gear arrangement was previously tested on the Martin XB-26H "Middle River Stump Jumper," a B-26 Marauder that had been converted as a test aircraft.

The Stump Jumper

Since neither main gear was sufficiently close to the aircraft's center of gravity to permit the traditional rotation method of takeoff from a level attitude, the aircraft was built so that it rested on the ground at the proper takeoff attitude.

Since the early turbojet engines had poor acceleration as compared to piston engines, it was felt that additional thrust was needed for takeoff. This was provided by building in provisions for 18 solid-propellant JATO rockets inside the fuselage aft of the wing. Each JATO unit had a thrust of 1000 pounds.

The swept wing was fitted with a set of Fowler flaps on the inner trailing edges. These moved aft a considerable distance from their nested position in the underside of the wing as well as moving downwards.

The thin swept wing was extremely flexible, and the tips could flex 5 feet on either side of the normal position. Although the wing actually had no dihedral, it appeared to have a negative dihedral while on the ground because of the droop caused by its weight. Even in the air, the aircraft appeared to have negative dihedral because the tips of the wing, which was mounted as a positive angle to the centerline of the fuselage, were physically lower than the center section.

It was initially feared that the flexible wing would introduce controllability problems, because the deflection of conventional ailerons might tend to twist the wing in the opposite direction, nullifying or even reversing the aileron action. As a result, a set of spoilers was installed on the upper wing surfaces of the first prototypes to assist turn entry. However, it turned out that this precaution was unnecessary, and that the control was perfectly adequate with conventional ailerons, and the spoilers were deleted.

The crew of three consisted of a pilot, co-pilot/gunner, and a navigator/bombardier. The pilot and co-pilot sat in tandem beneath a fighter-style bubble canopy. The navigator/bombardier sat inside the nose behind a plexi-glass nose cone, and operated a radar bombing system using an antenna that was housed below the nose in a bulged plastic fairing. The thin wing had no space for fuel tanks, so all fuel had to be carried inside the fuselage. This meant that serious attention had to be paid to fuel consumption management, since the mass of fuel was distributed along a considerable length of the aircraft.

It was assumed that the high speed of the XB-47 would protect it against attacks from all quarters except from the extreme rear, so only tail defensive armament was provided. This consisted of a pair of 50-caliber machine guns in a turret in the extreme end of the tail cone. At first, an Emerson-built tail turret (referred to as the A-1 fire control system) with a cab for a tail gunner was to have been fitted. However, it proved to be too difficult to provide a cabin for a tail gunner, so a remotely controlled system was chosen which would be operated by one of the crew members. This eventually gave way to the A-2 fire control system, which eliminated the need for a separate tail gunner altogether. The A-2 system was to provide accurate defensive fire and was to be able to perform both search and track duties (although not simultaneously). The twin 50-caliber tail

guns could be controlled remotely from the cockpit or could be aimed and fired automatically by a radar directed system that locked onto an aircraft attacking from the rear.

XB-47 rollout

The first XB-47 (46-065) rolled out of the factory at Seattle, Washington, on September 12, 1947. It was powered by six 2750 General Electric J35-GE-7/9 turbojets. It was the first large American jet aircraft to feature a swept wing

The first flight of the XB-47 took place on December 17, 1947, with Bob Robbins and Scott Osler at the controls. On this first flight, the plane went from Seattle to nearby Moses Lake AFB, Washington, to begin a series of extensive flight tests.

The USAF flight tested the first XB-47 for approximately 83 hours, including 38 hours of Phase II flight tests that were carried out by Air Force test pilots between July 8 and August 15, 1948. The Boeing pilots that first flew the XB-47 were enthusiastic. Test flights at Muroc that summer had demonstrated that the XB-47 was 74 mph (64 knots) faster than the Martin XB-48. However, its performance was below that expected. The ceiling was 2500 feet below that promised by Boeing, and 7500 feet lower than that originally required by the USAAF. Its speed was slower than expected.

The second XB-47 (46-066) was fitted with larger 5200 lb. static thrust General Electric J47-GE-3 engines prior to its first flight. It flew for the first time on July 21, 1948. The new engines raised the top speed past the 600 mph (521 knots) level. The Air Force formally accepted the first XB-47 on November 29, 1948. The second XB-47 was accepted a month later.

The first XB-47 was later retrofitted with J47 engines, and flew with the J47s for the first time on October 7, 1949. On September 3, 1948, the first production was placed for the B-47. Ten B-47As were ordered on October 28, 1948, and the first 88 B-47Bs were added to the contract on November 14, 1948. On November 22, 1948, the Air Force issued a Letter Contract that covered an initial order for 10 B-47As and the future procurement of three more B-47As and 41 B-47Bs. The three additional B-47As were later canceled, and on February 28, 1949, the number of B-47Bs on order was raised from 41 to 55.

At the time of the production order, the weapon system concept had not yet been adopted by the USAF, but when it was, the B-47 became the first aircraft to receive a Weapon System designation, the bomber and photo-reconnaissance versions being WS-100A and WS-100L respectfully.

On February 8, 1949, the first XB-47 flew from Moses Lake AFB, Washington, to Andrews AFB near Washington, D.C., averaging 602.2 mph (523.3 knots) over a 2289 mile (1989 nautical mile) course, setting an unofficial transcontinental speed record. While in Washington, the aircraft was

shown to members of the House Armed Services Committee in the hope of obtaining sizable production orders.

Serial numbers of the Boeing XB-47 Stratojet:
46-065 and 46-066 (2)

Specifications of the Boeing XB-47 Stratojet:
Powerplant:
Six General Electric J35-GE-7 turbojets, each rated at 3750 lbs. static thrust.

Performance:
Maximum speed: 578 mph (502 knots) at 15,000 feet.
545 mph (474 knots) at 35,000 feet.
568 mph (494 knots) at sea level.
Service ceiling: 41,000 feet.
Cruise speed: 466 mph at 15,000 feet.
Stall speed: 129 mph at 15,000 feet.
Initial climb rate: 3100 feet per minute.
Range: 2650 miles (2303 nautical miles) with a 10,000 pound bombload.
Ferry range: 4000 miles (3476 nautical miles).

Dimensions:
Wingspan: 116 feet 0 inches.
Length: 107 feet 6 inches.
Height: 27 feet 8 inches.
Wing area: 1428 square feet.

Weights:
Empty: 74,623 pounds.
Normal: 125,000 pounds.
Gross: 121,080 pounds.
Maximum for takeoff: 162,500 pounds.

Armament:
Two 50-caliber machine guns in tail turret (not installed in the XB-47).

Bombload:
Normal: 10,000 pounds.
Maximum: 16 1000 pound bombs or one 22,000 pound bomb.

Additional material provided by Robert M. Robbins, Lt Col. Andy Labosky and Mark Natola

The B-47 *Stratojet* Association

B-47A

The B-47A using internal RATO

On November 22, 1948, the Air Force issued a letter contract for an initial order of ten B-47A production examples, and the future procurement of three more B-47As and 41 B-47Bs. The three additional B-47As were later canceled. The ten B-47As were scheduled for delivery between April and November 1950. In June of 1949, the B-47 program was substantially increased, and the number of B-47Bs was increased to 102. On November 14, 1949, the Air Force amended the contract to call for a total of 87 B-47Bs.

Unlike the two Seattle built prototypes, the B-47As (company designation Model 450-10-9) were all manufactured at the government owned but Boeing operated facility in Wichita, Kansas. Having ceased production of aircraft following the end of World War II, military planners insisted that for strategic reasons, the new medium jet bomber be built at the idle Wichita plant. The first B-47A flew on June 25, 1950. It took another year to deliver all ten B-47As on the order. The B-47A was powered by six 5200 lb. static thrust J47-GE-11 turbojets and retained the built-in JATO feature of the prototypes. It increased takeoff weight from 121,080 pounds to 151,324 pounds. The B-47A was essentially a service test version of the XB-47, and was essentially identical to the XB-47 prototypes. They were test and training models for both the Air Force and the manufacturers, and were not considered combat ready. Throughout 1950-51, flight testing of the B-47A as well as the first XB-47 continued. Unfortunately, neither plane was very safe to operate. Both the XB-47 and the B-47A were found to be seriously under powered, and suffered from critical braking problems occurred during aborted takeoffs and after high gross weight landings on wet runways.

To reduce the length of the landing run, a 32-foot deceleration or brake parachute was provided that was stowed underneath the tail, just forward of the tail cone. Conventional solid parachutes could not stand the load without ripping, so a special ribbon type parachute originally developed in Germany was designed. This chute was deployed immediately after touchdown to help slow down the aircraft and shorten the landing roll. Since the poor acceleration characteristics of the jet engine made go-arounds after an aborted landing hazardous, a second and smaller sixteen-foot drogue or approach parachute was developed that acted as an in-flight air brake that made it possible to make landing approaches at relatively high engine powers. If a go-around became necessary, the approach chute could be jettisoned and the airplane could accelerate quickly. If the landing was normal, the approach chute could be left attached while the main brake chute was deployed. Following the end of the landing roll, both the approach and brake chutes

were jettisoned after clearing the runway before the B-47 taxied in. The chutes were recovered and repacked by the ground crews.

There were problems with the ejection seat equipment. The ejection seats were removed after an XB-47 accident in which the pilot was killed. As a substitute, a bail-out spoiler was provided underneath the nose so that the crew entry door could be used for egress.

Deliveries of the B-47A to the USAF began in December of 1950. The B-47A entered service in May of 1951 with the 306th Bombardment Wing (Medium) based at MacDill AFB in Florida. The 306th was intended to act as a training outfit to prepare future B-47 crews. None of the B-47As ever saw any operational duty. Most of the B-47As were unarmed and were initially almost without vital electronic components. Only four of the ten had the K-2 bombing navigation system. The tail armament of two 50-caliber machine guns was tested with an A-2 fire control system on 49-1906 and with an A-5 fire control system on 49-1908. Some of the B-47As stayed with the Air Proving Command.

Serial Numbers of the Boeing B-47A Stratojet 49-1900 thru 49-1909 (10)
Specifications of the Boeing B-47A Stratojet:
Powerplant: Six General Electric J47-GE-11 turbojets, each rated at 5200 lbs. static thrust.
Performance:
Maximum speed: 600 mph (521 knots) at 8800 feet.
Service ceiling: 38,000 feet.
Combat ceiling: 44,300 feet.
Initial climb rate: 3375 feet per minute.
Combat radius: 1550 miles (1347 nautical miles).
Range: 2650 miles (2304 nautical miles) with a 10,000 pound bomb load.
Ferry range: 4000 miles (3477 nautical miles).
Takeoff ground run: 6000 feet at sea level.
Dimensions:
Wingspan: 116 feet 0 inches.
Length: 106 feet 9 inches.
Height: 27 feet 8 inches.
Wing area: 1428 square feet.
Weights:
Empty: 73,240 pounds.
Normal: 106,060 pounds.
Maximum takeoff: 157,000 pounds.
Armament:
Two 50-caliber machine guns in tail turret (not installed in the B-47A).
Bombload:
Normal: 10,000 pounds.
Maximum: 16 1000 pound bombs or one 22,000 pound bomb.

Additional material provided by Robert M. Robbins, Lt. Col. Andy Labosky and Mark Natola

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B-47B

The B-47B in flight

The B-47B (Model 450-11-10) was the first true production Stratojet. Eighty-seven B-47Bs had been contracted for by the Air Force in November of 1949, but the outbreak of the Korean War in 1950 brought increased demands for Stratojets and the Stratojet program was destined to become the largest bomber production program since the end of the Second World War.

The first 87 B-47Bs contracted for in November of 1949 were due to be delivered between December of 1950 and December of 1951. The B-47B was to be built at the government-owned Boeing Plant II at Wichita, Kansas, since the Seattle plants were all committed to the manufacture of the B-50 and the C-97, and the conversion of obsolescent B-29s to tankers.

The B-47B was powered by six General Electric J47-GE-11 engines and had structural modifications that allowed takeoff weights as high as 200,000 pounds. It had a Nesa glass windshield with special rain repellent that replaced the earlier windshield wipers. The glass was coated with a transparent chemical conductor of electricity, which enabled it to be kept free of ice. A single-point ground and air-to-air refueling receptacle was fitted. It featured a two-gun tail turret controlled by a radar sight and a B-4 fire control system, although very few B-47s were actually fitted with this armament because of chronic problems with the system. The B-47B carried a K-4A bombing navigation system with a periscope sight in a modified nose, AN/APS-54 warning radar, and AN/APT-5A electronics countermeasures devices. A shorter bomb bay accommodated 18,000 pounds of nuclear or conventional bombs.

However, in the interest of saving weight, the ejection seats that had been fitted to the B-47A were deleted. The B-47B was provided with a spoiler door at the aircraft's main entrance to make in-flight escapes safer.

Following the outbreak of the Korean War, the USAF decided that it needed B-47s in greater quantity than the Boeing facilities could supply. Douglas and Lockheed were requested to join in the manufacture of B-47s in their own plants, reviving the "Boeing-Vega-Douglas" pool that had been established during World War II for the manufacture of the B-17 Flying Fortress.

The Lockheed versions of the Stratojet were to be built at a government-owned plant in Marietta, Georgia (near Atlanta) which had been operated by Bell Aircraft during the war for the manufacture of the B-29-BA Superfortress. This plant had been shut down at the end of the war, but was reopened in January of 1951 for use by Lockheed to de-cocoon and prepare for operations 120 B-29s which had been in storage. The Lockheed-built Stratojets were designated B-47-LM.

The Douglas versions of the Stratojet were to be manufactured at a government owned plant at Tulsa, Oklahoma which had been built during World War II and reactivated for operation by Douglas for the fulfillment of government contracts. The Douglas-built Stratojets were designated B-47-DT.

The Boeing-Wichita B-47s were designated B-47-BW to distinguish them from Seattlebuilt Boeings, which used the suffix -BO. The Douglas company was awarded a production letter contract in December of 1950, Lockheed soon afterwards. However, neither the Douglas nor the Lockheed plants started production before 1953. The first Stratojets built by these two plants were actually assembled from components supplied by Boeing-Wichita. Only ten B-47Bs were completed by Douglas-Tulsa and eight by Lockheed-Marietta (all of them built from Boeing-supplied components) before production switched over to the more advanced B-47E version. Douglas and Lockheed went on to build considerable numbers of B-47E Stratojets from scratch.

The first B-47B was accepted in March of 1951, and 87 similar planes were delivered within a year. However, these B-47s were almost immediately deemed unsuitable for the Strategic Air Command, and the Air Force recommended no less than 2000 changes. The plane was now seriously overweight, the maximum weight being over 200,000 pounds, which made the aircraft unstable at high altitude and generally hard to maneuver.

In spite of the deficiencies of the first B-47Bs, plans were made for the acquisition of more Stratojets. In November of 1951, a definitive contract was issued for no less than 445 additional Stratojets. The number was reduced to 395 in March of 1952 after more realistic production schedules were established. Nevertheless, even more procurements soon followed. Fifty-two RB-47s and 510 B-47B were ordered in June of 1952, and three other contracts were issued during the year - in September for 540 B-47Bs, in October for 70 RB-47s and in December for another 193 B-47Bs. As it turned out, a total of 1760 B/RB-47s were ordered during 1952, but this order was later reduced and most of those that were built were actually delivered as B-47Es.

The omission of ejection seats from the B-47B turned out to be a serious mistake. SAC had always believed that ejection seats were the safest way to escape from a highspeed aircraft. Even under controlled flight conditions, escape from the B-47 via the escape hatch was hazardous, and it was, for all practical purposes, impossible to escape from an uncontrolled B-47 using such a system. In mid-1950, a request was made for the immediate reinstatement of the ejection seats, but it was clear that they could not be incorporated in production B-47s for quite a while, leaving as many as 400 B-47s still flying without ejection seats.

The K-2 bombing and navigation system fitted to the B-47B was unreliable and hard to maintain. It had 370 vacuum tubes and nearly 20,000 separate parts, with components scattered all throughout the aircraft. No in-flight maintenance was impossible and failures were frequent. By mid-1952, the K-2 had been made to work better, but it still needed improvement even after additional modifications had resulted in its redesignation as the K-4.

The tail defense system originally earmarked for the B-47 was the Emerson A-2 which was to provide accurate defensive fire for the protection of the B-47 and to perform both search and track functions. However, the suitability of the A-2 for the B-47 was deemed too questionable to warrant its retention and it was canceled at the end of 1951. The Emerson A-2 system was replaced by the General Electric A-5 system. Since the A-5 system would not be ready until the end of 1953, a stopgap measure was necessary, and it was decided to retrofit early B-47s with a two-gun turret and an N-6 optical sight. The 89th B-47B and all later B-47Bs were equipped with more-powerful J47-GE-23 engines rated at 5800 pounds of thrust (Model number 450-67-27). The first 88 B-47Bs were retrofitted with these more powerful -23 engines.

Deliveries of the B-47B to the USAF began in mid-1951, the first unit to re-equip with the Stratojet being the 306th (Medium) Bomb Wing, comprising the 367th, 368th, and 369th Bomb Squadrons.

A refinement program began in January of 1952 to correct some of the B-47's problems. This involved the modification of 310 B-47Bs. The Strategic Air Command expected its first modified planes by July, and a monthly delivery of 75 by the end of the year, but this proved to be overly optimistic. At first, this work was to be done at the Grand Central Depot of Tucson, but it soon became apparent that the job was much too large for them and both Boeing and Douglas were asked to help. The original modification schedule began to slip, and in September of 1952, the few B-47Bs actually flying with SAC had to be grounded because of fuel cell leakages. In spite of the delays, SAC began to receive its first modified B-47Bs in October of 1952. SAC received 8 modified B-47Bs in October of 1952, 23 in November, 34 in December, and 13 in January of 1953. They went to the 305th and 306th Wings. In June of 1953, B-47Bs from the 306th Wing began a 90-day rotational training mission (TDY) to England, marking the first overseas deployment of the B-47B

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The last B-47B was built in June of 1953, with the USAF taking delivery the next month. A total of 399 B-47Bs were built, all of them manufactured by Boeing-Wichita, although final assembly of a few B-47Bs was carried out at Lockheed and Douglas from components supplied by Boeing. Production was immediately shifted to the B-47E version, which was destined to become the major production version of the Stratojet. In a program begun in May of 1953, SAC's B-47Bs underwent an extensive modification and maintenance program to bring them up to the latest standards, which was essentially that of the B-47E. As approved in June of 1953, 165 of SAC's modified B-47Bs would go to a program known as High Noon, and the remainder would be upgraded during Ebb Tide, which was organized as High Noon's second phase. It featured ejector seats for all crew members, a more reliable bombing/navigation system, the deletion of the fixed JATO units in favor of a jettisonable 19 or 33 rocket assisted takeoff pack, a modified bomb bay that could carry the thermonuclear bomb, a reinforced landing gear which could handle higher takeoff weights, the A-5 fire control system (in place of the B-4), an AN/ARC-21 long-range radio, and better electronics countermeasures equipment. 6000 lb. static thrust J47-GE-25 engines with water injection were installed, and General Electric radar-directed 20-mm cannon were installed in the tail in place of the 50-caliber machine guns.

The High Noon program was finished in early 1956, and was immediately replaced by Ebb Tide. By 1957, the B-47Bs had effectively ceased to exist, having either been brought up to the B-47E standard or else having been sufficiently transformed as to acquire new designations. These modified B-47Bs are sometimes known as B-47B-II, although this was not an official Air Force designation. Outwardly, they could be distinguished from B-47Es only by their serial numbers.

Serial Numbers of the Boeing B-47B Stratojet:
49-2642/2646 (5)
50-001/082 0040 converted to a KB-47G hose and drogue tanker.
0069 converted to a YB-47F refueled by hose and drogue system.
0082 converted to a YB-47C (originally designated XB-56). (82)
51-2045/2356 2046 converted to an XB-47D testbed for Wright XT-49 turboprop.
2059 transferred to the RCAF as testbed for the Orenda Iroquois engine as a CL-52.
2103 converted to an XB-47D testbed for the Wright XT-49 turboprop.
2115 converted to a WB-47D weather aircraft.
2141, 2150, 2155, 2160, 2165, 2170, 2175, 2180, 2185 and 2190 were completed by Douglas from components supplied by Boeing.
2145 was completed by Lockheed as a mockup only.
2186 flew as a YDB-47B for the Rascal program.
2160, 2162/2191 were converted to DB-47Bs for drone controllers.
2197, 2204, 2210, 2217, 2224, 2231, 2237 and 2243 were completed by Lockheed from components supplied by Boeing.
2192/2234 were converted to DB-47Bs. (312)

Specifications of the Boeing B-47B Stratojet:
Powerplant:
Six General Electric J47-GE-23 turbojets, 5970 lbs. static thrust each.
Performance:
Maximum speed: 608 mph (528 knots) at 16,300 feet.
565 mph (491 knots) at 35,000 feet.
Cruising speed: 498 mph (433 knots).
Stalling speed: 177 mph (154 knots).
Service ceiling: 33,900 feet.
Combat ceiling: 40,800 feet.
Initial climb rate: 2560 feet per minute.
Combat climb rate: 4775 feet per minute (maximum power).
Combat radius: 1965 miles (1708 nautical miles) with 10,000 pounds of bombs.
Ferry range: 4444 miles (6853 nautical miles).
Takeoff ground run: 9100 feet.
7200 feet with JATO.
Dimensions:
Wingspan: 116 feet 0 inches.
Length: 106 feet 10 inches.
Height: 27 feet 11 inches.
Wing area: 1428 square feet.
Weights:
Empty: 78,102 pounds.
Combat: 122,650 pounds.
Gross: 184,908 pounds.
Armament:
Two 50-caliber machine guns in tail turret.
Bomb load: 18,000 pounds.

Additional material provided by Robert M. Robbins and Mark Natola

The B-47 *Stratojet* Association

RB-47B

The RB-47B

RB-47B was the designation initially given to a proposed photo-reconnaissance version of the B-47B Stratojet. The design of the RB-47B began in March of 1951. Shortly before October of 1952, it was decided that the plane would feature the A-5 fire control system and the still experimental J47-GE-25 engines. Since it was projected that the RB-47B would not be ready before 1954, and by the time that the RB-47B was completed it would more closely resemble the B-47E than the B-47B, the reconnaissance version of the Stratojet was redesignated RB-47E.

What actually became known as the RB-47B were 24 B-47Bs that were converted to reconnaissance configuration in 1953-54 by adding a special eight-camera heated pod in the forward bomb bay. Unlike the later RB-47E, the RB-47B could only provide daylight photographic coverage.

The YRB-47B was a later conversion of the B-47B specifically intended for the training of crews for RB-47Es. The 91st Strategic Reconnaissance Wing Medium) received its first YRB-47B in April of 1953, and the 26th SRW, three months later.

The B-47 *Stratojet* Association

MB-47

(This version was never fully developed)

From the start, the B-47 bomber had been designed with the capability of delivering nuclear weapons. The hydrogen bomb program, whose development began during the late 1940s and was pressed to completion during the early 1950s, promised to increase the destructive power of nuclear weapons by almost a hundredfold. However, the thermonuclear bomb did present a special problem not encountered by the less-powerful atomic bomb - the hydrogen bomb was expected to provide such a lethal blast that it would destroy any aircraft releasing it in the conventional manner.

In 1949, the Air Force began work on a super-secret program to develop an effective delivery system for the upcoming hydrogen bomb. At first, it was thought that only missiles would be suitable for the delivery of the hydrogen bomb. However, in 1949 it was estimated that it would take at least three years before any of the missiles that were then under development could be ready. In search of a delivery option that would be available sooner, the Air Force settled on the use of an unmanned aircraft. At the time, only three aircraft could meet the basic load and range requirements - the B-36, B-47 and the B-49. Of these, the B-47 seemed to be the most suitable.

Early in 1950, it was decided that one of the ten B-47As expected to be delivered by 1951 would be converted into a drone director aircraft under the designation DB-47A. In support of the program, two future B-47Bs would be modified to unmanned hydrogen bomb carrier (MB-47) configuration. The Air Force was still uncertain about the details of how the MB-47 would operate - one possibility was that it might dive onto its target like a conventional missile, with another option being to release its bomb in the normal fashion and then be destroyed by the blast.

In April of 1951, the program was given the code name Brass Ring. Unfortunately, very little information was available about the size and weight of the future H-bomb, but it was expected to be large and heavy. Consequently, it was assumed that the B-47 drone would have to be refueled in midair several times in order to reach its target. This meant that the drone would have to carry a crew until the last refueling operation. The crew would then bail out over friendly territory and the deserted MB-47 would proceed on to its target guided by autonomous stellar tracking systems or by auto-navigation. The design of a fully automatic, non-jammable guidance and bombing system provided a major challenge, so the Air Force started to consider the possibility of using a director DB-47 that would accompany the MB-47 drone all the way to the target.

Boeing subcontracted North American Aviation to develop the automatic navigation equipment. The Sperry Gyroscope Company was to supply the automatic flight control equipment and the Collins Radio Company would supply the guidance equipment.

None of these schemes ever reached fruition, because it was found that it was possible to deliver hydrogen bombs the old-fashioned way. It was found that a B-36 could release a parachute-equipped H-bomb over a target with an adequate margin of safety for escape. Moreover, whether it was a B-36 or B-47 that delivered the weapon, the margin for safety was deemed more than adequate. The Brass Ring program was officially canceled on April 1, 1953.

DB-47B

The DB-47B with GAM-63 "Rascal"

The YDB-47B version of the Stratojet was intended to carry the Bell GAM-63 Rascal air-to-surface guided missile. The designation Weapons System 112L was also assigned to the Rascal project, and the project development began in 1949.

The name "Rascal" was actually an acronym that stood for RAdar SCAnning Link, so named for the guidance system that was used during the missile's dive onto the target. This guidance system was to be installed aboard the controlling aircraft. This system was to be developed jointly by Bell Avionics, Radio Corporation of America (RCA), and Texas Instruments.

The GAM-63 missile was powered by a Bell-designed liquid-fueled rocket engine made up of three vertical in-line thrust chambers and developing a thrust of 4000 pounds. It had a launch weight of about 13,000 pounds and was 31 feet long with a body diameter of four feet. At a top speed of Mach 2.95, the missile could carry a 3000 pound nuclear warhead up to 100 miles.

The Strategic Air Command was never very enthusiastic about the Rascal program, believing that the missile was far too complex, with a guidance system that was likely to be prone to frequent failures and which would be relatively easy for an enemy to jam. However, the Air Staff pushed hard for the Rascal concept, and SAC was forced to go along.

The Rascal missile as originally conceived was earmarked for the Convair B-36 and the B-60, as well as for the B-47 and the B-52. In March of 1952, the list of candidate aircraft for the Rascal was reduced to the B-36 and the B-47, with the B-47 being assigned the first priority.

The first Rascal air launch took place on September 30, 1952, from a modified Boeing DB-50D. Despite official resistance from SAC, in 1953, B-47B serial number 51-2186 was modified as a Rascal carrier under the designation YDB-47B. The missile was to be suspended from the starboard side of the fuselage. At launch, the missile would be

released from its supports, with the rocket motor firing once the Rascal had dropped a safe distance away from the YDB-47B. In addition, two B-47Es (51-5219/5220) were earmarked for conversion to Rascal carriers.

As the Rascal program proceeded, SAC's sense of unease increased still further. SAC felt that equipping the B-47 fleet with the large and bulky externally mounted Rascal would degrade the aircraft's performance to such extent as to make the whole concept of dubious value. SAC also feared that the guidance system would never work very well, and they were reluctant to add even more complex electronic equipment to an already electronically packed B-47. Modification costs (about a million dollars per aircraft) were high, and personnel training demands were considerable. Nevertheless, the Air Force decided in June of 1955 that the B-47 and not the B-36 would carry the GAM-63, and most of the DB-36 modification contract was canceled. As part of the program, 30 B-47Bs, originally earmarked for Ebb Tide would now be converted to DB-47 configuration as Rascal carriers.

Despite a successful first Rascal launch from a DB-47E in July of 1955, the entire project seemed to falter. In early 1956, it was decided that the requirements for DB-47Es would be limited to only the first two. In May of 1957, it was announced that only one rather than two DB-47/GAM-63 squadrons would be fielded. That still did not satisfy SAC, since they felt that the Rascal program would be outmoded by the time it achieved operational status. Nevertheless, by the end of 1957, crews of the 321st Bomb Wing were involved in Rascal training.

It was planned that the 321st Wing's 445th Bombing Squadron would operate from Pinecastle AFB in Florida. Formal acceptance of the first production GAM-63 took place at Pinecastle AFB on October 30, 1957. However, even by early 1958, Rascal facilities were still not yet in place at Pinecastle.

My sources differ on the effectiveness of the Rascal. Pelletier claims that the Rascal turned out to be a fairly accurate and effective missile, with examples from the service test batch scoring four consecutive direct hits on targets at the Air Force Missile Development Center in New Mexico. In point of contrast, Knaack concluded that the results of Rascal testing were dismal - out of 64 scheduled launches, only one being a complete success, more than half being canceled and the others being failures.

In any case, the Rascal concept rapidly became obsolete in the face of new developments in the field of air-launched missiles. SAC finally got its way, and the Rascal program was formally canceled on September 9, 1958. On November 18, AMC was directed to dispose of the 78 experimental and the 58 production Rascal missiles that had been accepted.

The B-47 *Stratojet* Association

TB-47B

A TB-47B with Drag Chute

The TB-47B was a conversion of the standard B-47B as a transition trainer for pilots and navigators. It was basically similar to the B-47B but had a fourth crew position added for an instructor. Forty-eight B-47Bs were modified to TB-47B configuration at Douglas-Tulsa, and 18 were modified by the USAF at Oklahoma City.

The B-47 *Stratojet* Association

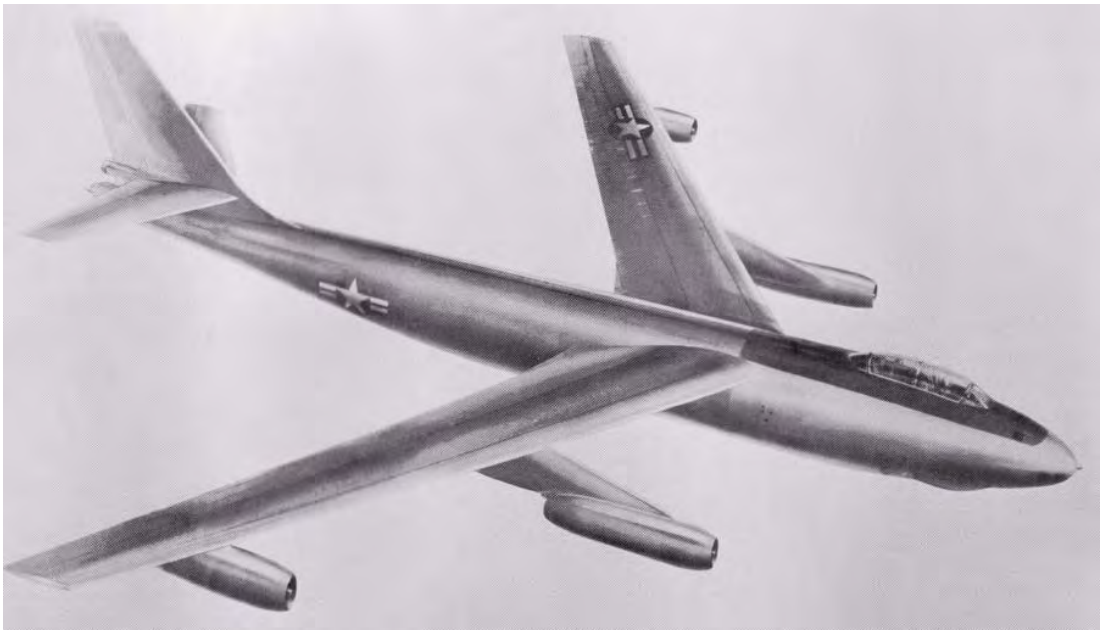
WB-47B

WB-47B

In 1956, a single B-47B (51-2115) was modified by General Precision Laboratories as a weather reconnaissance aircraft under the designation WB-47B. This project was carried out at the request of the US Congress in response to the disastrous 1954 hurricane season. The WB-47B was used to penetrate hurricanes and to perform other weather-related duties. In November of 1958, the WB-47B aircraft began to do research work in collaboration with the Tiros II weather satellite, the first of the weather satellites. The WB-47B logged 126.5 hours of flight time before it was retired in 1963 when more efficient WB-47Es became available.

The B-47 *Stratojet* Association

YB-47C



The YB-47C (Proposed)

The early versions of the Stratojet were all severely underpowered, and in pursuit of a more powerful Stratojet, the Air Force proposed a version of the B-47 powered by four 10,090 lb. static thrust Allison J71-A-5 turbojets. The designation YB-56 was assigned to this project, since the different engine configuration was thought to justify a change in designation. A reconnaissance version known as RB-56A was also planned. According to the original planning, the 88th B-47B (50-092) was scheduled be converted to YB-56 configuration as a test bed for the concept.

For a time, the YB-56 was intended to be the "definitive" Stratojet. However, since the airframe was basically that of a "stock" B-47B, the designation of the YB-56 was changed to YB-47C. The J71 engine was later found to be unsuitable for the Stratojet, and a decision was made to switch to the new Pratt and Whitney YJ57 turbojet. However, these engines were not yet available, and, in any case, they were already earmarked for the B-52. Consequently, the YB-47C program was canceled in December of 1952, and no four-jet Stratojet was ever built.

The B-47 *Stratojet* Association

XB-47D

The XB-47D

During the late 1940s and early 1950s, the USAF was interested in determining the feasibility of producing a high speed, long-range turboprop-powered bomber. In support of this goal, the Air Force requested that a pair of B-47Bs be converted as flying testbeds to test a jetengine-propeller combination and to provide data on the installation of turboprops in swept-wing aircraft.

In April of 1951, Boeing received a contract for the modification of two B-47Bs as flying turboprop testbeds under the designation XB-47D. The two B-47Bs selected for the conversion were serial numbers 51-2103 and 51-2046. They retained the outboard J47-GE-23 jet engines of the B-47B, but a single Curtiss-Wright YT49-W-1 turboprop of 9710 equivalent shaft horsepower occupied each of the inboard underwing nacelles in place of the paired J47s.

The T49 was a turboprop version of the Wright J65, which was an American version of the British-designed Armstrong Siddeley Sapphire turbojet. The turboprops drove four-bladed propellers 15 feet in diameter having paddle type blades each 24 inches wide. The wing flaps had to be modified to accommodate the T49s, and changes had to be made in instrumentation and controls for four engines rather than the usual six.

The program was delayed by problems with the T49 engine, which failed to pass its 50 hour qualification run. Additional problems with the engine-propeller combination and shortages of government furnished equipment delayed progress still further. It was not until late 1955 that the aircraft were ready for their first flights.

XB-47D 51-2103 flew for the first time on August 26, 1955, with 51-2046 following on February 15, 1956. Although numerous test flights were made without mishap, no further conversions were ordered and the Air Force never pursued its idea of a turboprop-powered bomber any further. The maximum speed achieved by the XB-47D during these tests was 597 mph (519 knots) at 13,500 feet, the fastest achieved in level flight by a propeller-driven aircraft.

Specifications of the Boeing XB-47D Stratojet:

Powerplant:

Two Wright YT49-W-1 turboprops, 9710 shaft hp each.
Two General Electric J47-GE-23 turbojets, 5800 lbs. static thrust each.

Performance:
Maximum speed: 597 mph (519 knots) at 13,500 feet.
Service ceiling: 33,750 feet.
Initial climb rate: 2910 feet per minute.

Dimensions:
Wingspan: 116 feet 0 inches.
Length: 108 feet 0 inches.
Height: 28 feet 0 inches.
Wing area: 1428 square feet.

Weights:
Empty: 79,800 pounds.
Gross Takeoff: 184,428 pounds.

Armament: The XB-47D was not fitted with any armament.

The B-47 *Stratojet* Association

B-47E

The B-47E in formation

The B-47E was the major production version of the Stratojet. A total of 1341 B-47Es were built - 386 by Lockheed, 264 by Douglas and 691 by Boeing.

The B-47E was basically the standardized production version of the Stratojet, and incorporated many innovations that had been suggested by experience with the B-47B. It standardized on six General Electric J47-GE-25 engines, which offered a static thrust of 7200 pounds with water injection. These engines had already been refitted to several B-47Bs. The 18 unit internal JATO system was retained on early models, but was soon replaced by a jettisonable rack that contained 33 1000 lb. static thrust units that could be dropped following takeoff. The B-47E was fitted from the start with an approach chute to increase drag and a brake chute to decrease the landing roll. An anti-skid braking device was also fitted.

The armament was changed to two 20-mm cannon in the tail. The A-5 fire control system that had taken so long to develop was finally fitted. The A-5 fire control system was much better than the discarded B-4 system of earlier versions, and could automatically detect and track pursuing aircraft and aim and fire the 20-mm cannon. The earlier B-4 system could at best spray machine gun fire in the general direction of an attacking plane, without much prospect of actually scoring a hit.

The nose section of the B-47E incorporated as standard equipment an in-flight refueling receptacle for flying-boom midair refueling on the starboard side of the nose. The use of in-flight refueling capability enabled the total fuel capacity to be reduced to 14,610 gallons, including two 1700-gallon drop tanks carried underneath the wings between the engine nacelles. The crew was finally provided with ejection seats as standard equipment, with the pilot and co-pilot ejecting upward over the tail and the bombardier/navigator ejecting downward through a hatch in the lower nose.

The undersurfaces and lower portion of the fuselage of most B-47Es were painted a glossy white to reflect the heat radiation from nuclear blasts. This reflective paint was applied retroactively to some B-47Bs.

The first B-47E flew on January 30, 1953, and the Air Force accepted this plane in February. By mid year, 127 similar production examples had been delivered. The first B-47Es went in April of 1953 to the 303rd Bomb Wing based at Davis-Monthan AFB in Arizona. The next recipient of the B-47E was the 22nd Bomb Wing at March AFB, California, retiring their B-47Bs to the Air Training Command.

By mid 1953, peak B-47 procurement was expected to reach almost 2200, but was cut by 140 in September of 1953. A further production cut of 200 aircraft considered in October was prevented in favor of a 20 month production stretch-out during the period in which the B-52 production line was getting up to speed. In contrast to the B-36 program, which was on the verge of cancellation several times, there was never a significant effort to cancel the B-47 program.

The B-47E rapidly became the dominant component of the USAF strategic deterrent during the mid and late 1950s. By December of 1953, SAC had eight B-47 Medium Bomber Wings. In December of 1954, the SAC inventory counted 17 fully-equipped B-47 wings. By the beginning of 1956, 22 wings had received the B-47, and another five wings were getting ready to convert to the B-47. In December of 1956, SAC had 27 combat-ready B-47 wings, with 1204 combat-ready B-47 crews and 1306 B-47 aircraft assigned.

A modified landing gear allowing heavier takeoff weights appeared on the 521st and subsequent B-47Es, and this configuration was labeled B-47E-II. The first B-47E-II reached the Air Force in August of 1953.

A far stronger landing gear was incorporated on the 862nd and later B-47Es. This configuration was known as B-47E-IV. The IV also introduced the MA-7A bombing radar, the AN/ASP-54 warning radar, and the AN/APG-39 gun-laying radar. The B-47E-IV had a takeoff weight of 230,000 pounds, 28,000 pounds more than previously permissible. This extra weight was largely devoted to extra fuel, enabling the combat radius of the IV to increase to 2050 nautical miles, almost twice the distance demonstrated five years earlier by the first B-47A. The Air Force received its first B-47E-IV in February of 1955. In March of 1955, it was decided that all active B-47s would be brought up to the IV standard.

Spurred by the Suez crisis of 1956, SAC demonstrated its ability to launch a large striking force on short notice when in December more than 1000 B-47s flew nonstop, simulated combat missions, averaging 8000 miles (6952 nautical miles) each over the American continent and Arctic regions.

Early in 1955, the Strategic Air Command requested the B-47 be adapted for low-level bombing, with the aircraft delivering its bomb via the toss-bomb technique. In a toss-bombing attack, the plane enters the run at low altitude, pulls up sharply into a half loop with a half roll on top and releases the bomb at a predetermined point in the climb. The bomb continues upward in a high arc, falling on the target at a considerable distance from its release point.

In the meantime, the maneuver allows the airplane to reverse its direction and gives it more time to speed away to a safe distance from the blast. This technique was adopted because it was thought that high-speed B-47s flying at low level would be less vulnerable to enemy countermeasures. The existence of low-level capable B-47s would mean that a potential enemy would now be faced with threats from both high and low-level attacks.

In June of 1955, a 6000 pound dummy bomb was successfully released from a B-47E during a 2.6g pull-up from level flight. In another test flight, an 8850 pound practice bomb was dropped from a 2.5g pull-up.

Despite some doubts about the structural integrity of the B-47 under the stresses involved in such maneuvers, in December of 1955, SAC ordered that 125 B-47s be modified for low-level flight.

Low-level bombing involved special crew training. A training program known as Hairclipper was started in December of 1955. However, adverse weather, excessive maintenance requirements, serious deficiencies in LABS systems and several accidents caused Hairclipper to be officially discontinued in March of 1958. However, the end of Hairclipper did not signify the end of low-level flying.

A program known as Pop Up, a related training program that took advantage of recent advances in weapons developments, fared better. In the Pop Up maneuver, the aircraft came at low level, pulled up to high altitude, released its weapon, and then dove steeply to escape the enemy radars. Following the discovery of fatigue cracks in the wings of some B-47s in April of 1958, Pop Up was interrupted while the entire B-47 fleet could be checked. It was resumed in September, and by the end of 1959 the training program had finally been completed.

On January 25, 1957, a B-47 flew from March AFB, California to Hanscom Field, Massachusetts in 3 hours, 47 minutes, at an average speed of 710 mph (617 knots). On August 14, 1957, a 321st Bomb Wing B-47 made a record nonstop flight from Andersen AFB, Guam to Sidi Slimane Air Base in French Morocco, a distance of 11,450 miles (9950 nautical miles) in 22 hours and 50 minutes. This required four midair refuelings. In November of 1959, a B-47 assigned to the Wright Air Development Center stayed in the air for 3 days 8 hours 36 minutes, covering 39,000 miles (33,890 nautical miles). This broke previous time-and-distance records.

The discovery of fatigue cracks in the wings of the B-47 during April of 1958 and a rash of new accidents in early 1958 triggered an immense inspection and repair program known as Milk Bottle. All three B-47 manufacturers as well as AMC were involved in Milk Bottle. The low-level B-47s of the 306th and 22nd Bomb Wings were the first to enter the program, since they were most in danger of fatigue cracking. The program ended in July of 1959. Although Milk Bottle did not solve all the B-47's problems, it did go a long way in to making operations with the B-47 a lot safer.

SAC initially wanted 1000 B-47s modified for low-level flying, which meant fitting virtually the entire Stratojet fleet with absolute altimeters, terrain-avoidance equipment, and Doppler radar. Because of the Milk Bottle repair program, testing delays, and the phase-out of some SAC B-47 wings due to a lack of funds, SAC was forced to scale down its low-altitude requirements to only 500 Stratojets. This program was given a new sense of urgency by the belief that by 1963 all B-47s would be hopelessly obsolete if they were not equipped for low-level flight. However, fund shortages dictated that SAC scale down its low-altitude requirements to only 350 aircraft.

A total of 931 B-47Es were built by Boeing-Wichita, Douglas-Tulsa built 274 and Lockheed-Marietta built 385. The final B-47E (53-6244) was delivered on February 18, 1957 to the 40th Bomb Wing at Schilling AFB, Kansas.

The beginning of the phase-out of the B-47E coincided with the delivery of the last example. In 1957, the 93rd Bomb Wing started exchanging its B-47s for B-52s. In March of 1961, President John F. Kennedy directed that the phase-out of the B-47 be accelerated. However, this was delayed in July by the onset of the Berlin crisis of 1961-62. In the following years, B-47s were gradually delivered to the storage facility at Davis-Monthan AFB. SAC's last two B-47s went to storage on February 11, 1966.

Serial Numbers of the Boeing B-47E Stratojet:

51-2357/2445 2358, 2360, 2362, 2363, 2366, 2369, 2373, 2375, 2380,
2383, 2385, 2387, 2390, 2396, 2397, 2402, 2406, and
2408 were converted to WB-47Es.
2360 on display at the New England Air Museum.
2412/2415, 2417, 2420, 2427, and 2435 were converted to WB-47Es. (89)
51-5214/5257 5219 and 5220 converted to YDB-47Es for the Rascal program.
5218 and 5257 converted to WB-47Es. (44)
51-7019/7083 7021, 7046, 7049, 7058 and 7063 were converted to WB-47Es.
7066 converted to a WB-47E. (65)
51-15804/15812 Built by Lockheed-Marietta. (9)
51-17368/17386 (19)
52-019/120 Built by Douglas-Tulsa. (102)
52-146/201 Built by Douglas-Tulsa. 0166 on display at Castle AFB Museum. (56)
52-202/393 Built by Lockheed-Marietta.
52-305 converted to a EB-47L.
52-389 to a JB-47E. (192)
52-394/620 (227)
52-1406/1417 Built by Douglas-Tulsa. (12)
52-3343/3373 Built by Lockheed-Marietta. (31) 53-1819/1972 Built by Lockheed. (154)
53-2028/2040 Built by Douglas-Tulsa. (13) 53-2090/2170 Built by Douglas-Tulsa. (81)
53-2261/2417 2280 on display at the WPAFB Museum.
2345 and 2346 were converted to DB-47Es. (157)
53-4207/4244 Some were converted to ETB-47Es and EB-47Ls. (38)
53-6193/6244 Some were converted to ETB-47Es and EB-47Ls. (52)
Specifications of the Boeing B-47E Stratojet:

Powerplant:

Six General Electric J47-GE-25 turbojets, 5970 lbs. static thrust dry and 7200
lbs static thrust with water injection.

Performance:

Maximum speed: 607 mph (528 knots) at 16,300 feet.
557 mph (484 knots) at 38,500 feet.
Cuising speed: 500 mph (434 knots).
Stalling speed: 175 mph (152 knots).
Service ceiling: 33,100 feet.
Combat ceiling: 40,500 feet.
Combat climb rate: 4660 feet per minute (maximum power).
Combat radius: 2013 miles (1744 nautical miles) with a 10,845 pound
Bomb load. Ferry range: 4035 miles (3506 nautical miles) with a 16,318 gallon fuel load.
Takeoff ground run: 10,400 feet, 7350 feet with JATO.

Dimensions:

Wingspan: 116 feet 0 inches.
Length: 107 feet 0 inches.
Height: 27 feet 11 inches.
Wing area 1428 square feet.
Weights:
Empty: 79,074 pounds.
Combat: 133,030 pounds.
Gross: 198,180 pounds.
Maximum takeoff: 230,000 pounds.
Armament: Two 20-mm M24A1 cannon in tail.
Maximum bomb load: 25,000 pounds.

YDB-47E

The YDB-47B with 4 GAM-67

Two B-47Es (51-5219/5220) were completed in January of 1954 as YDB-47Es for service tests with the Bell GAM-63 Rascal air-to-surface missile. The missile was suspended from the starboard side of the fuselage behind the wing. After the missile was released, it was guided to the target by radio control from the parent YDB-47E. These modifications resulted in a model number change to 450-167-50.

The GAM-63 missile was powered by a Bell-designed liquid-fueled rocket engine made up of three vertical in-line thrust chambers and developing a thrust of 4000 pounds. It had a launch weight of about 13,000 pounds and was 31 feet long with a body diameter of four feet. At a top speed of Mach 2.95, the missile could carry a 3000 pound nuclear warhead up to 100 miles.

The Rascal concept rapidly became obsolete in the face of new developments in the field of air-launched missiles. The Rascal program was formally canceled on September 9, 1958.

DB-47E

The DB-47E

Two additional B-47Es (53-2345 and 53-2346) were converted to Rascal carriers under the designation DB-47E. They were essentially similar to the YDB-47E except they carried the Boeing designation of Model 450-172-52.

The B-47 *Stratojet* Association

EB-47E

EB-47E

A version of the B-47E called "Phase IV Blue Cradle", was given the designation "EB-47E". The initial EB-47 conversion featured a set of 16 jammers in a removable cradle stored in the bomb bay, plus radar warning receivers and chaff dispensers. The more advanced "Phase V" EB-47E featured a pressurized module that was stowed in the bomb bay, with 13 jammers under control of two Crows. While the Phase IV jammer system was "broadband", blanketing a wide range of frequencies in hopes of jamming radars operating somewhere within that range, the Phase V jammer system could be selectively tuned to specific radar frequencies by the crows, permitting much higher jammer power on the frequencies that did the most good. Records indicate about 40 B-47E's were modified to the EB-47E.

Two EB-47Es (s/n 24100 and 24120) were loaned to the US Navy for electronic countermeasures (ECM). Modified and redesignated as EB-47Es, they were operated and maintained by McDonnell Douglas Tulsa, OK. Each aircraft had it's long-range external wing tanks replaced with electronic countermeasures equipment, multiple antennaes were added and chaff dispensers were installed. Each remained operational with the Navy long after the last USAF B-47s were retired from service. The final operational flight of a B-47 occurred on 20 December, 1977, when after accumulating more than 10,000 hours on it's airframe, 24100 was flown to Pease AFB, NH, where it was demilitarized and put on display.

Additional information provided by
Lt. Colonel David L. Hall USAF (Ret)

ETB-47E

The ETB-47E

After 1959, several B-47Es were used for training under the designation ETB-47E. As in the case of the TB-47B, the converted ETB-47E had a fourth crew seat for the instructor.

QB-47E

The QB-47E

The QB-47E was the designation given to two B-47Es that were converted into prototype radio-controlled drones for use as targets or for other tasks deemed too hazardous to human occupants. Twelve more conversions were carried out by June of 1960. Even though the QB-47Es were unmanned, they were generally considered as being too expensive to be treated as being expendable, and the guided missiles tested against them were usually programmed to make near-misses. Even in spite of such precautions, a QB-47E was inadvertently destroyed by a direct hit from a Bomarc missile.

The B-47 *Stratojet* Association

WB-47E

The WB-47E

WB-47E was the designation assigned to converted B-47Es used for weather reconnaissance. They had nose mounted cameras that recorded cloud formations and they carried air sampling and data recording equipment in place of nuclear weapons. The weather service received the first of 34 WB-47Es on March 20, 1963. They were modified by Lockheed-Marietta. The WB-47Es began to be replaced by WC-130 and WC-135 aircraft in 1965, but total phase-out took another 3 years. The last WB-47E - actually the last operational B-47 in the Air Force inventory - was delivered to Davis-Monthan AFB on October 31, 1969.

The B-47 *Stratojet* Association

RB-47E

The RB-47E on alert duty (note ATO rack installed)

The RB-47E was a dedicated photographic reconnaissance version of the B-47E. A total of 240 was built by Boeing-Wichita. The first 52 were known as Model 450-216-29 by the company, with the remainder being known as Model 450-158-36. As compared with the standard B-47E, the nose of the RB-47E was 34 inches longer so that it could house a special air-conditioned compartment for cameras and other sensitive equipment. There was a return to the built-in JATO units that had been used on the B-47B. The bombing equipment was deleted, but the 20-mm tail armament and the A-5 fire-control system were retained. The crew was still three, but the bombardier now became the photographer/ navigator. Eleven cameras could be carried, along with ten photoflash bombs and supplementary photoflash cartridges for night photography. Although the RB-47E could be refueled in flight, the fuel load capability was increased to 18,405 US gallons.

The first RB-47E flew for the first time on July 3, 1953. The last of 255 RB-47Es were delivered in August of 1955. The final 15 of the RB-47Es were completed as RB-47K weather reconnaissance aircraft.

Phaseout of the RB-47E began on October 14, 1957, when 51-5272 was retired to the boneyard at Davis-Monthan AFB.

Serial Numbers of the Boeing RB-47E Stratojet:
51-5258/5276 (19)
51-15821/15853 (33)
52-685/825 (141)
52-3374/3400 (27)
53-4245/4264 4245/4246 converted to DB-47Es.
4256, 4362 converted to JQB-47Es.
Some converted to QB-47Es. (20)
53-4265/4279 Originally ordered as RB-47Es but completed as RB-47Ks. (15)

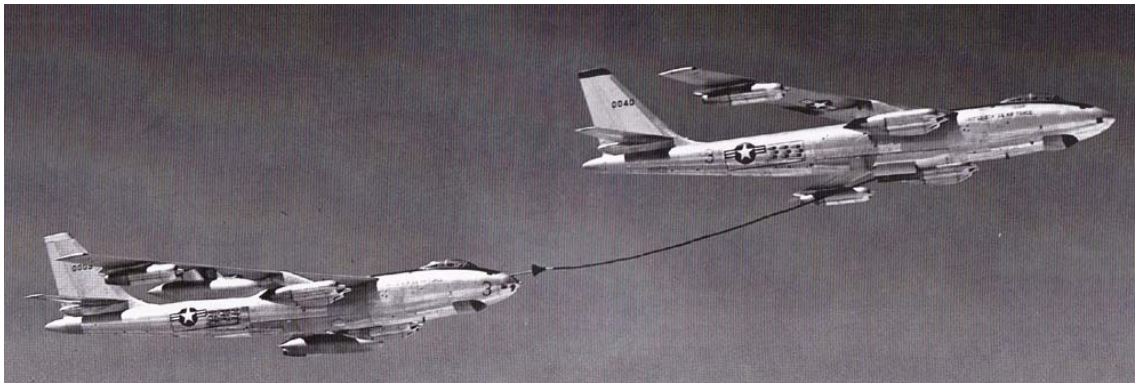
YB-47F

The YB-47F (lower aircraft) refueling with the KB-47G

Clearly, aerial tankers with greater speeds would be required. In early 1953, two B-47Bs were allocated for tests with the British developed probe and drogue aerial refueling system. One was to be a tanker and the other a receiver. The converted aircraft were re-designated KB-47G and YB-47F respectively.

The YB-47F was a conversion of B-47B serial number 50-069. It was fitted with a probe in the nose for in-flight refueling via the probe and drogue system. Unfortunately, the probe and drogue refueling method did not prove to be effective for the B-47, and subsequent models were refueled by the established flying boom system. The speed problem was eventually solved by adding auxiliary jet engines to the piston-engine KB-50 and KC-97 tankers, which were used to provided additional bursts of speed during the refueling operations.

YB-47F



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RB-47H

The RB-47H on duty at Thule Greenland

The RB-47H was an electronic reconnaissance and countermeasures version of the B-47E. It was built in response to a mid 1951 requirement laid down for an aircraft that would be capable of countering enemy air defense systems. An additional pressurized compartment was carried in the area formerly occupied by the short bomb bay. The compartment carried additional electronic equipment intended to locate and analyze enemy radar emissions as well as three operators, bringing the total crew to six. Self-protection equipment such as transmitters and chaff dispensers were provided for the jamming of enemy radar signals.

The first RB-47H entered service with the 55th Strategic Reconnaissance Wing at Forbes AFB, Kansas, in August of 1955. The last RB-47H was delivered in January of 1957. A total of 35 RB-47H aircraft were built. Three of the RB-47Hs were delivered as ERB-47H electronic ferret aircraft.

The RB-47H carried out many ferret missions around the periphery of Soviet territory, and sometimes inside. Shortly after the U-2 incident of May 1, 1960, an RB-47H was shot down by Soviet fighters over the Bering Sea.

The last SAC B-47, a RB-47H (53-4296) of the 55th SRW was flown to Davis-Monthan AFB for storage on December 29, 1967, bringing the era of B-47 service with the USAF to an end.

Serial Numbers of the Boeing RB-47H Stratojet:
53-4280/4309 4291, 4293/4294 converted to RB-47H. (32)
53-6245, 6246, and 6249 converted to ERB-47H. (3)

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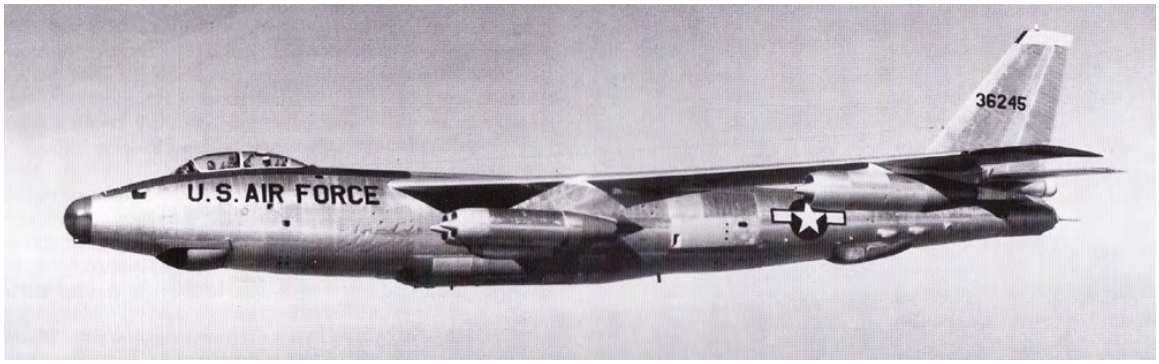
ERB-47H



The ERB-47H

ERB-47H was the designation assigned to three RB-47Hs (53-6245/6246 and 6249) modified as special reconnaissance aircraft designed to detect and locate surface radar stations. Normal flight crew was three, but additionally a two member crew could be carried in a bomb bay pod along with the special equipment.

YB-47J

The YB-47J

The single YB-47J was a standard B-47E modified to carry and evaluate the new MA-2 radar bombing-navigation system.

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RB-47K

The RB-47K

An additional 15 RB-47E aircraft on order were completed as RB-47Ks. They differed from the RB-47E in being equipped for both weather and photographic reconnaissance at all altitudes. These involved the use of high-resolution and side-looking radars. The first RB-47K was delivered in December of 1955.

The RB-47K was basically an airborne weather information gathering system. They were operated by the 55th Strategic Reconnaissance Wing, and flew all over the world gathering weather data for SAC and sampling the radioactive fallout from foreign nuclear tests. They were phased out in the early 1960s.

Serial Numbers of the Boeing RB-47K Stratojet:

53-4265/4279 Originally ordered as RB-47Es. (15)

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EB-47E

The EB-47E TT

The B-47 shown on this page is not just an EB-47E....it is an "EB-47E Tell Two". There were three of these special models...53-2315, 53-2316, 53-2320....used for Telemetry (TELINT) collection against Russian missile and space launches at Kapustin-Yar and Tyura-Tam missile-drones in the early 1960s, flown by crews of the 55th SRW (Forbes AFB). There were usually 1 or 2 of the planes TDY to TUSLOG Det-50 (a SAC Detachment) at Incirlik AB, Turkey. They flew off of a "live Alert" status to collection areas in the Black Sea and/or eastern Iran near the Turkmenistan border. These missions were un-refueled, about 8½ hours long. The entire mission, from start engines was radio silent until returning from the collection area, at 100 miles out from Incirlik.

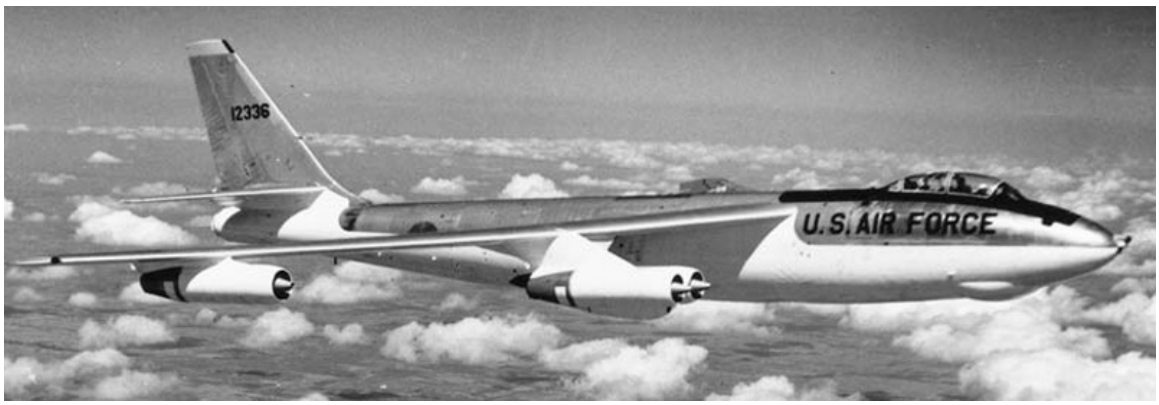
The Tell Twos were also used to collect telemetry from Russian long range ICBM missile tests to the mid-Pacific test range. The missions were flown from Hawaii, or Wake Island, unrefueled.

One of these aircraft crashed in 1965 at Incirlik, after post mission holding over Incirlik due to high crosswinds. After holding long enough not to have sufficient fuel to get to an alternate, and needing to land due to low fuel, the aircraft porpoised and crashed with the high crosswinds.

The above information was provided by Jack Kovacs a 55th SRW pilot (for 5 years) on the Tell Two for 4 years, flying three 90-day plus deployments to Turkey, as well as a deployment to Hawaii/Wake Island. After leaving Forbes he went to Turkey as an Ops Officer to manage the Tell Two missions from the SAC Detachment for 2 years.)
Approximately 40 B-47Es were fitted with additional electronics countermeasures equipment, and re-designated as EB-47Es. This variant featured a two man crew located in a pod in the bomb bay, similar in design to the RB-47H. The EB-47E was primarily a jammer, and externally was identical to the B-47Es that they were expected to accompany. Several EB-47Es were fitted with a special electronics countermeasures package mounted in the bomb bay. Known as "Blue Cradle" EB-47Es, these aircraft did not require the additional crew members.

The B-47 *Stratojet* Association

EB-47L



The EB-47L PACCS

In 1963, 35 obsolescent B-47Es were modified as electronics communications aircraft under the designation EB-47L. The EB-47Ls, equipped with AN/ARC-89 (V) communications relay transceivers were operated by Post Attack Command Control Squadrons, and served as relay stations between other aircraft or between aircraft and ground stations during and after a nuclear attack.

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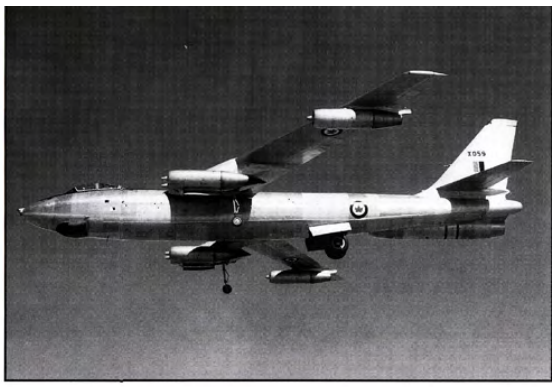
CL-52/B-47B



The sole CL-52, carrying minimal RCAF markings, was employed in tests for the Orenda Iroquois engine that was planned for the Avro of Canada CF-105 Arrow. The mammoth size of the engine is readily apparent in this view. (Left: SAC Combat Crew Magazine; Right: Boeing)

CL-52/B-47B

In spite of the large numbers of B-47s built, none of them ever ended up in the service of foreign air forces. There is, however, one significant exception, a B-47 loaned to the Royal Canadian Air Force as a flying test bed for the Orenda Iroquois turbojet.
In 1956, the USAF loaned B-47B serial number 51-2059 to the Royal Canadian Air Force for use as a flying test bed for the 20,000 lb. static thrust Orenda Iroquois turbojet. A pair of Iroquois engines were to power the projected Avro CF-105 Arrow long-range interceptor, which was currently under development in Canada. After delivery, the RCAF turned the plane over to Canadair, Ltd. to complete the required modifications. A separate pod for the test engine was installed on the starboard side of the rear fuselage underneath the horizontal tail. The pod was 30 feet long and about six feet in diameter. The company assigned its own model number of CL-52 to the project. The CL-52/B-47B flew in RCAF markings, but retained the last three digits of its USAF serial number, which followed the prefix "X" to become the RCAF serial number. The CL-52 spent a total of 31 hours in the air with the Iroquois engine.

Following cancellation of the Arrow/Iroquois program, all Arrow airframes were ordered to be scrapped, including those in partially-completed state on the production line. All that survives today is the front end of Arrow 25206 plus a couple of outer wing panels on display at the National Aviation Museum of Ottawa. A pair of Iroquois engines still survive, one in the National Aviation Museum and the other at the Canadian Warplane Heritage Museum in Hamilton, Ontario.

After the termination of the Arrow/Iroquois program, the Iroquois engine was removed from the CL-52 and the aircraft was returned to the USA. The plane was scrapped at Davis-Monthan AFB shortly thereafter.

The B-47 *Stratojet* Association

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