

# B-52 Stratofortress

in action



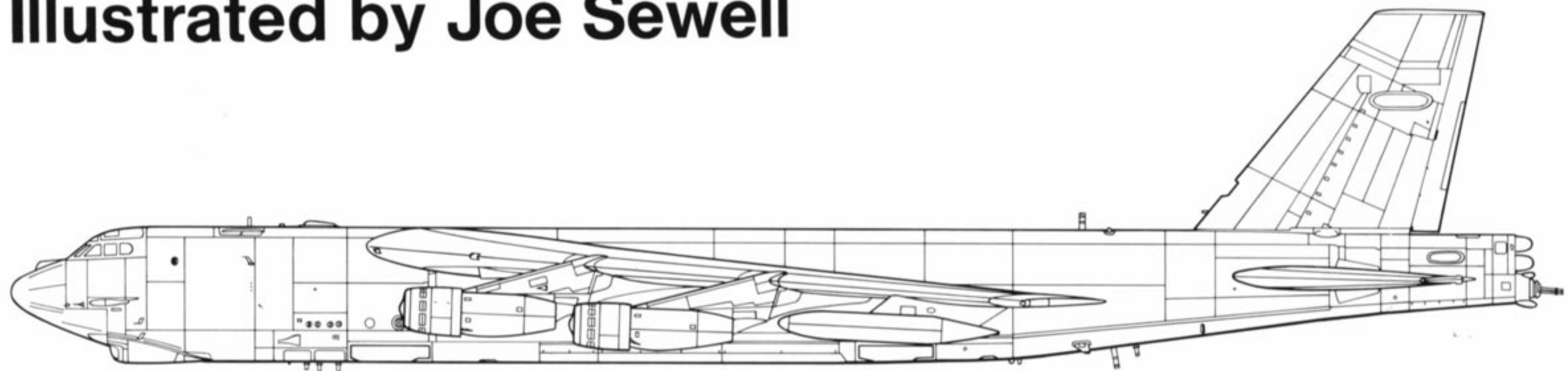
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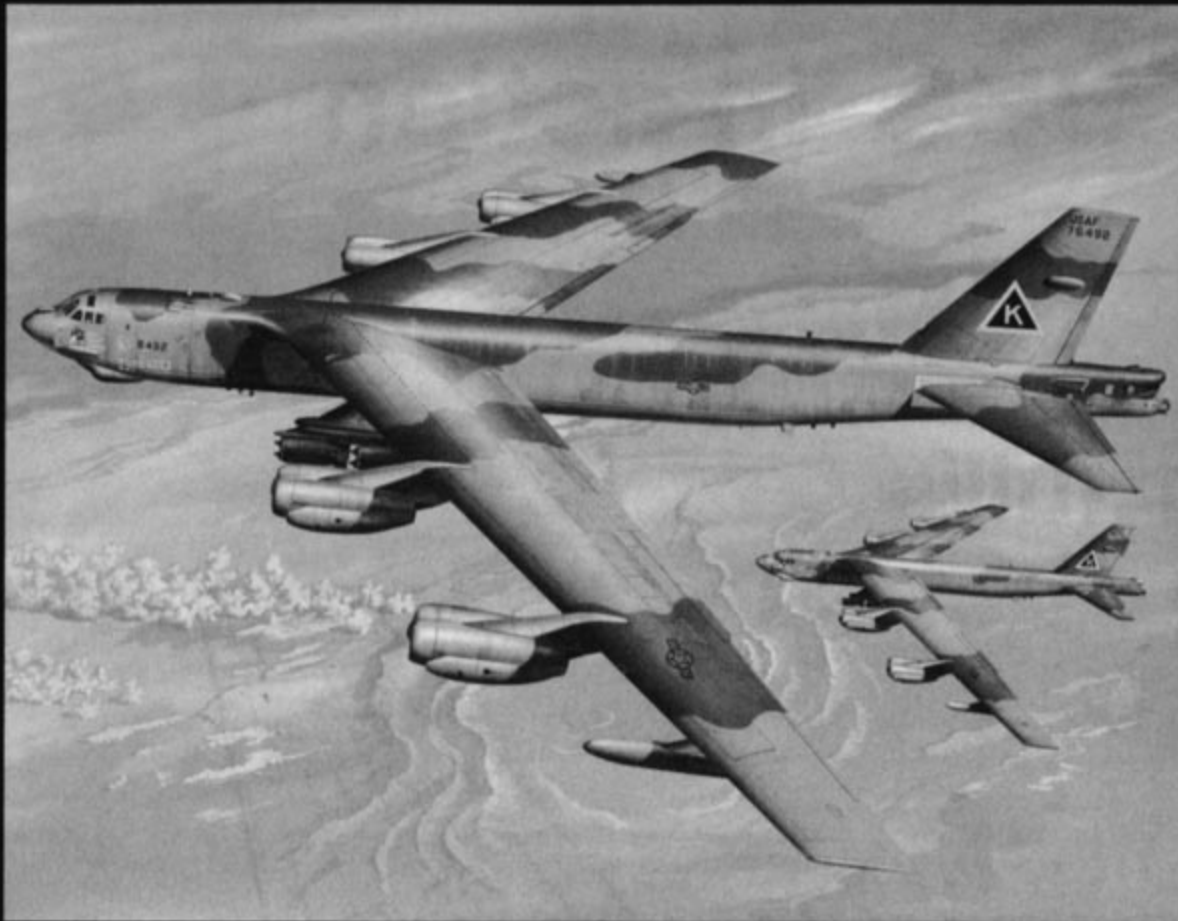
# **B-52 Stratofortress in action**

**by Larry Davis**

**Color by Don Greer & Tom Tullis**  
**Illustrated by Joe Sewell**



**Aircraft Number 130**  
**squadron/signal publications**



*Old Crow Express and Viper, a pair of B-52Gs of the 379th Bomb Wing, attack Iraqi Republican Guard positions near Kuwait during Operation DESERT STORM in February of 1991. The Stratoforts were based at Jeddah, Saudi Arabia.*

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## Dedication

To all the men and woman of Strategic Air Command. A special thanks to Joe Bruch and MAJ Brian Rogers for the many hours they have devoted to make this project a success.

# BOEING

A B-52F of the 454th Bomb Wing leaves Andersen Air Base, Guam enroute to targets in Vietnam during 1965. America's "Big Stick" for over thirty years has been the B-52. (Joe Bruch)



# Introduction

The B-52, known by both its official name, Stratofortress, and by the acronym BUFF, loosely meaning Big Ugly Fat Fu — uh Fella, has been the airborne leg of the United States strategic triad for the past thirty-seven years. Although designed as a high altitude, intercontinental nuclear bomber, the design mission of the B-52 was never tested in actual combat — thankfully. But the aircraft has seen combat in both of America's most recent wars. In Vietnam and the Persian Gulf, B-52s were used in both a tactical and strategic role with conventional munitions. When a U.S. President wants to wield his "Big Stick," he directs SAC to "send in the B-52s!"

The B-52 is the product of Boeing Aircraft Company. William E. Boeing founded the company in 1915, although it didn't bear his name until 26 April 1917. Located at Lake Union near Seattle, Washington, Boeing built a number of successful Navy floatplane designs. Following the end of the First World War, Boeing license-built a number of existing designs such as the DeHavilland DH-4B and the Thomas-Morse MB-3A. But in June of 1923, Boeing unveiled a new design: the PW-9. It was the first successful venture for the fledgling company and Boeing built 166 PW-9 and FB fighters for both the Army and Navy.

Boeing introduced the first monoplane bomber, the Y1B-9, which could outfly most of the fighter aircraft of the era. Boeing answered the need for a high performance fighter with the P-26 Peashooter. Armed with a pair of .30 caliber machine guns, the P-26 had a speed of 235 mph, thirty-five mph faster than contemporary fighters.

Boeing began to build large aircraft in 1933 with the introduction of the Model 247 airliner. The 247 was a monoplane with fully retractable landing gear, de-icers on the wings and supercharged engines. The Model 247 led directly to the XB-15 and the B-17 Flying Fortress. The B-17 was the first four engined bomber with supercharged engines and the first to carry its entire bomb load internally. The B-17 made Boeing an industry giant and in June of 1944, the Boeing plant at Seattle was turning out sixteen B-17Gs a day. Additionally, both Douglas and Lockheed license built the bomber and a total of 12,731 B-17s were built.

Coinciding with the development of the B-17 was another giant, the Boeing Model 314 Clipper flying boat. Boeing built twelve Clippers, which mated the XB-15 wing with a flying boat hull. In 1934 Boeing purchased the Stearman Aircraft Corporation and their plant in Wichita, Kansas. It was here that over 10,000 Kaydets were built. In September of 1942, Boeing unveiled a new bomber that revolutionized military aviation: the B-29 Superfortress. The B-29 pioneered pressurized crew compartments, dual turbo-superchargers on each engine and remote control turrets. By the end of the war almost 4,000 B-29s had been built.

The B-29 led to both the B-50 and the C-97 Stratofreighter. Boeing also developed what is regarded as the most important development of the post-war era — inflight refueling. The Boeing-developed flying boom provided a direct pipeline from the tanker to the receiver. Beginning with the KB-29, Boeing built a number of tankers including the KB-50, KC-97 and KC-135, giving USAF bombers the ability to strike targets anywhere in the world.

B-52 development began in the early 1940s, when the US and Great Britain began several serious programs aimed at developing a truly intercontinental bomber that could leave bases in North America to bomb targets in Europe. This goal was finally reached just after the Second World War with the rollout of the Northrop XB-35 Flying Wing and the Convair XB-36, which became the first operational intercontinental bomber.

Two events took place in the mid-1940s that directly affected the development of the

B-52. The first was the Soviet takeover of Eastern Europe. The West now had a new enemy, an enemy whose industrial resources were scattered throughout the most vast nation on Earth — some of which lay outside the range of even the mighty B-36. Second, and equally as important, was the development of the gas turbine engine. Captured German documents on both jet engine research and high speed aircraft designs led both Eastern and Western military leaders to the same conclusion: jet aircraft were the future of military aviation.

By the end of 1945, jet fighter and bomber aircraft were being designed and built by virtually every manufacturer on both sides of the Iron Curtain. The first successful jet bomber was the North American Aviation B-45 Tornado. But it wasn't until North American developed the swept wing for the XP-86 that jet aircraft technology really came of age.

In January 1946, the Army Air Force issued a requirement for the next generation of intercontinental bombers. The specification called for a top speed in excess of 450 mph, a service ceiling over 40,000 feet and a range of over 5,000 miles (with 10,000 pounds of bombs). The range and bomb load also had to be carried at an average speed of over 300 mph. The B-36 could meet the range and bomb load requirements, but not the speed. Boeing entered the competition with the model 462, a development of the B-29/B-50 series. It was much larger, having a wingspan of 221 feet, but the circular fuselage and tail assembly were direct descendants of the B-29.

Jet engine technology was in its infancy and Boeing decided to power the new bomber design with six Wright T35 *turboprop* engines. Although the model 462 met most of the specifications, the Army felt that a great deal more speed would be needed in the next generation of bombers. Boeing continued development of the turboprop design using more powerful engines and a modest amount of sweep to the wing leading edge. The model 464-35 used Wright T35-W-3 turboprops driving counter-rotating propellers and, on 30 September 1947, the Air Force authorized a full scale mockup and two prototype aircraft under the designation B-52.

Three events changed the course of the entire program. First was the development of the swept wing Boeing XB-47 medium jet bomber. The second was the continuing problems associated with the development of the turboprop power plant, and the third was the development of a viable inflight refueling method.

**The XB-52 (49-230) on the ramp at Boeing Field during late 1951. The XB-52 was powered by eight 8,700 lbst Pratt & Whitney XJ-57 engines that gave the bomber a top speed over 600 mph with a maximum bomb load of 25,000 pounds. (Marty Isham)**



With the success of the XB-47 and the problems with the turboprops, Boeing engineers wanted to change the XB-52 proposal. Even though construction was already underway on the turboprop powered XB-52 (model 464-35), Boeing was willing to scrap the entire project in favor of an all jet aircraft. In October of 1948, Boeing engineers Ed Wells and George Schairer met with COL Pete Warden, head of bomber development. The engineers wanted to discuss the problems they had encountered and how they proposed to solve them. COL Warden not only agreed with them, he also advised them of a new power plant which should be considered for the XB-52: the Pratt and Whitney J57 engine. Boeing engineers suggested using six of the new engines under a wing swept back at 20 degrees. COL Warden went one step further and suggested the wing be swept at 35 degrees — the same as the F-86 and XB-47.

That meeting was held on a Friday evening, and over the weekend Boeing engineers re-designed their proposal with George Schairer constructing a balsa model of the new proposal. On Monday morning, 27 October 1948, they showed COL Warden their proposal. COL Warden liked what he saw and ordered the XB-52 contract modified to accept all the changes shown to him on the model 464-49.

The model 464-49 had a wing span of 185 feet, a length of 143 feet and a height of 46 feet (almost four stories tall)! Powered by eight Pratt and Whitney YJ-57-P-1 engines slung in dual engine pods under the wings, the model 464-49 was to weigh in at 152,300 pounds empty, with a design maximum weight of 330,000 pounds. The model 464-49 had four main landing gears mounted in tandem under the fuselage with a pair of outrigger wheels at the wingtips for balance. These differed from the B-47 in that all four were steerable for use in heavy crosswind conditions. Fuel capacity was 28,670 gallons internally, giving a projected combat range of 5,270 miles at an average speed of 453 mph. Maximum speed was estimated to be 538 mph at 20,000 feet.

The model 464-49 would have a crew of five, with the pilot and copilot under a bubble canopy. Below the cockpit would be the bombardier-navigator's station with two crew members. The tail gunner would operate a twin .50 caliber machine gun turret with 6,000 rounds per gun. Maximum bomb load was 25,000 pounds, consisting of one 25,000 pound nuclear weapon, or twelve 2,000 pound bombs, or twenty-four 1,000 pound bombs or forty 500 pound bombs in a single bomb bay. A type K-1 radar bomb sight was used to aim the various ordnance packages. In March of 1949 Air Force authorized a mockup and two prototype XB-52s based on the new proposal (model 464-67). The -67 proposal

**The two B-52 prototypes, the XB-52 and YB-52, fly over Edwards AFB during late 1952. Although completed four months after the XB-52, the YB-52 (49-231) was the first of the series to fly when the XB-52 suffered a hydraulic explosion during ground tests. (Arnold Swanberg via Brian Rogers)**



differed from the previous proposal in that nine feet in length was added to the forward fuselage and the gross weight rose to 390,000 pounds.

Covered with tarpaulins and with the vertical fin folded flat to clear the hangar door, the XB-52 prototype (49-230) was rolled out on 19 November 1951. Boeing named the new bomber aircraft the Stratofortress in keeping with its B-17/B-29/B-47 ancestry. The XB-52 prototype was powered by eight 8,700 lbst Pratt & Whitney YJ57-P-3 turbojet engines.

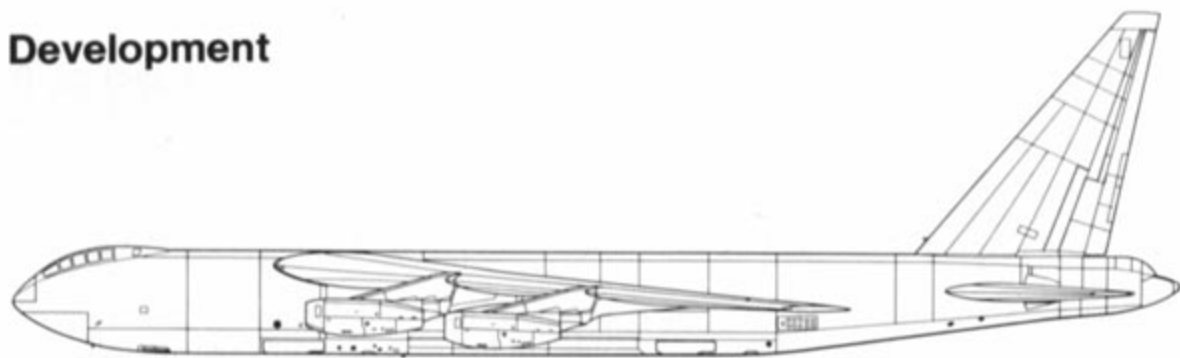
The XB-52 began an extensive battery of ground tests and during one of these tests a hydraulic explosion blew out the trailing edge of the wing, delaying the aircraft's first flight. It would be many months before the XB-52 would again be ready for its first flight. On 15 March 1952, the second prototype, designated a YB-52 service test aircraft, rolled out of the Seattle plant. It would be the YB-52 that would make the first B-52 flight on 15 April 1952, while the repaired XB-52 made its first flight on 2 October 1952.

Flight tests of the first two prototypes revealed good performance figures, plus the usual amount of bugs. Test pilots complained that the aircraft "handled like a truck," being very heavy on the controls. A few control adjustments soon fixed the problem. Problems aside, the pilots and the Air Force liked what they had. The Stratofortress was very fast for an aircraft of its size and on 4 September 1954, the YB-52 averaged 624 mph on a record run from Seattle to Dayton, Ohio. This was faster than the average speed of the Bendix Trophy-winning Sabres which had flown earlier that same year! The only major criticism came from the Commander of SAC, GEN Curtis LeMay. GEN LeMay, an old B-29 pilot, objected to the tandem seating arrangement for the pilot and co-pilot. Boeing engineers redesigned the entire forward fuselage to bring the two pilots together in a side-by-side cabin. After this change the Air Force ordered the aircraft into production.

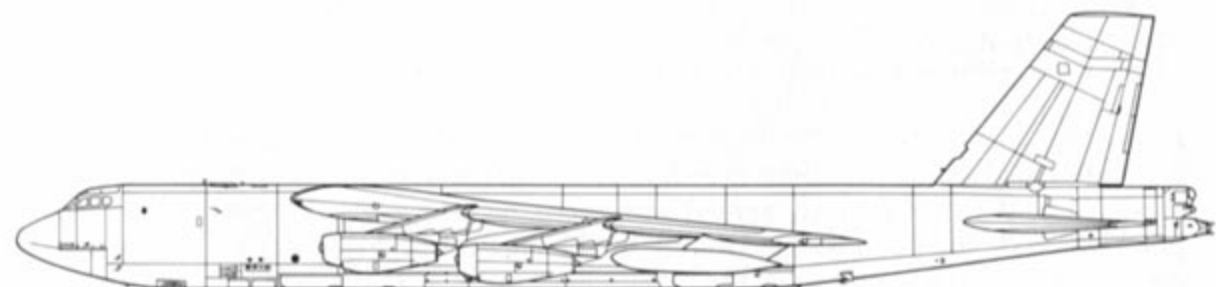
**The first and the last of the Boeing "Fortress" line. The YB-52 Stratofortress shares the Boeing Field ramp with an air-sea rescue SB-17G Flying Fortress during 1953. (Marty Isham)**



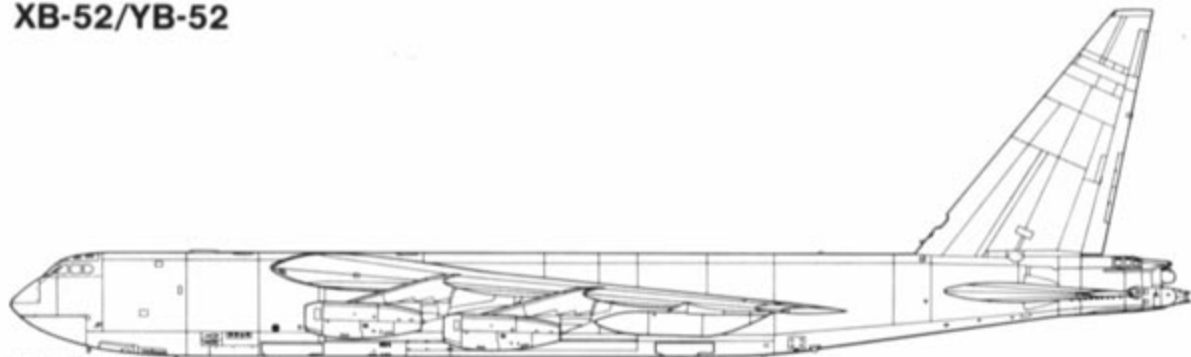
# Development



**XB-52/YB-52**



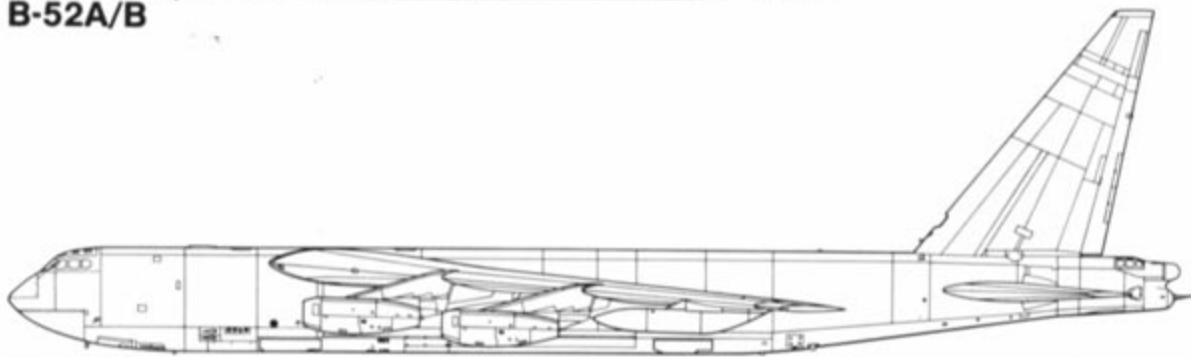
**B-52G (Early)**



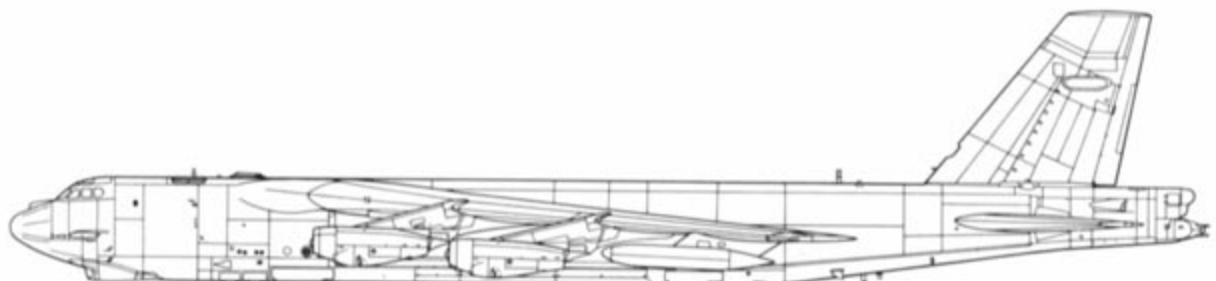
**B-52A/B**



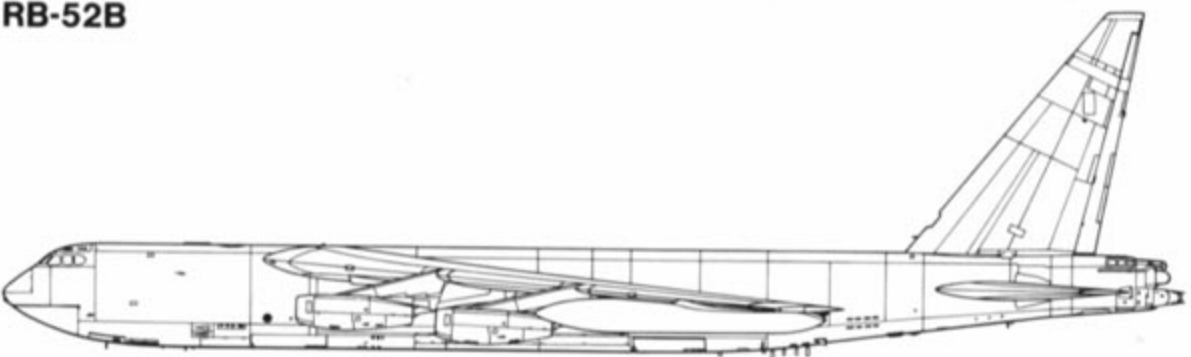
**B-52G/Phase IV**



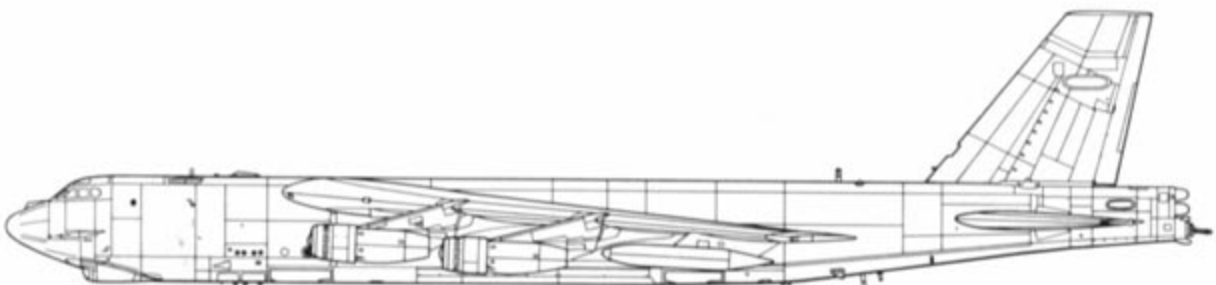
**RB-52B**



**B-52G (ACLM)**



**B-52C/D/E**



**B-52H**



**B-52F**



**B-52H Phase IV**

# B-52A

The B-52A was extensively redesigned from the earlier XB-52 and incorporated many new features which would become standard on most of the follow-on variants. The bubble canopy on top of the fuselage was deleted and both pilots now sat side by side inside the forward fuselage, which was lengthened four feet to make room for the new cockpit interior. The size of the crew was also increased with the addition of an Electronic Warfare Officer (EWO). The EWO controlled all the electronic defensive systems and sat on the upper deck with the pilots. The lower deck contained the bombardier and navigator and the tail gunner was in his turret in the rear of the aircraft.

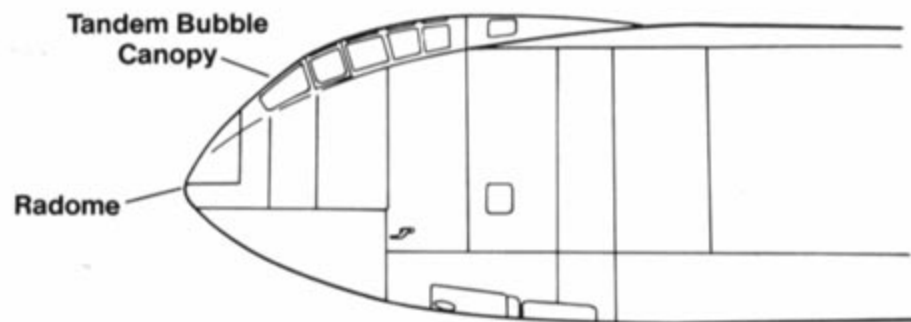
The B-52A had a modified power plant with water injection, giving the J57-P-9W engines 9,000 lbst with water injection. The B-52A also was configured with a pair of small doors in the upper fuselage behind the cockpit covering the inflight refueling receptacle. This receptacle was for use with the Boeing-developed flying boom system used on the Boeing KC-97 tanker. Inflight refueling meant that the B-52A now had a range limited only by crew endurance.

The first B-52A (52-001) rolled out of the Seattle plant on 18 March 1954, making its first flight on 5 August. Although the Air Force contract called for thirteen B-52As, Boeing built only three. The remainder were built as B-52Bs. All three B-52As were accepted by the Air Force and then bailed back (loaned) to Boeing for continued flight tests. The B-52As lacked complete avionics that would be found on the combat operational aircraft. Nor did they have a bomb/navigational system. The aircraft did have a new .50 caliber, four gun rear turret that used the A-3A Fire Control System.

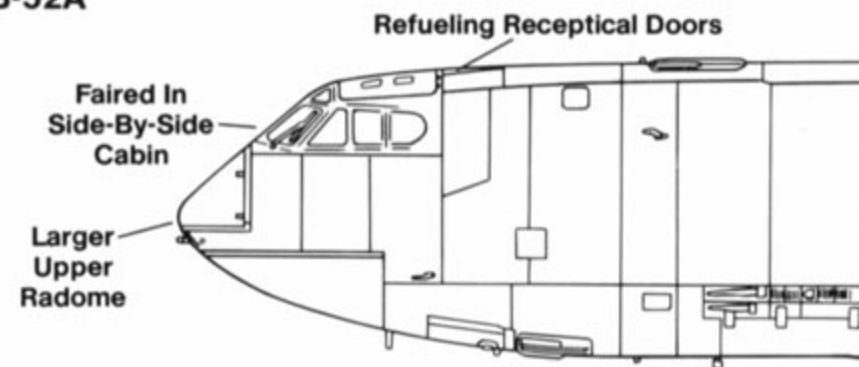
**The B-52A was the first of the series with side-by-side seating for the aircraft commander and pilot, which was specifically called for on orders from GEN Curtis LeMay, CinCSAC. The B-52A rolled out on 18 March 1954 and was the first to have the manned rear turret fitted. (Robert F. Dorr)**

## Fuselage Development

### XB-52



### B-52A







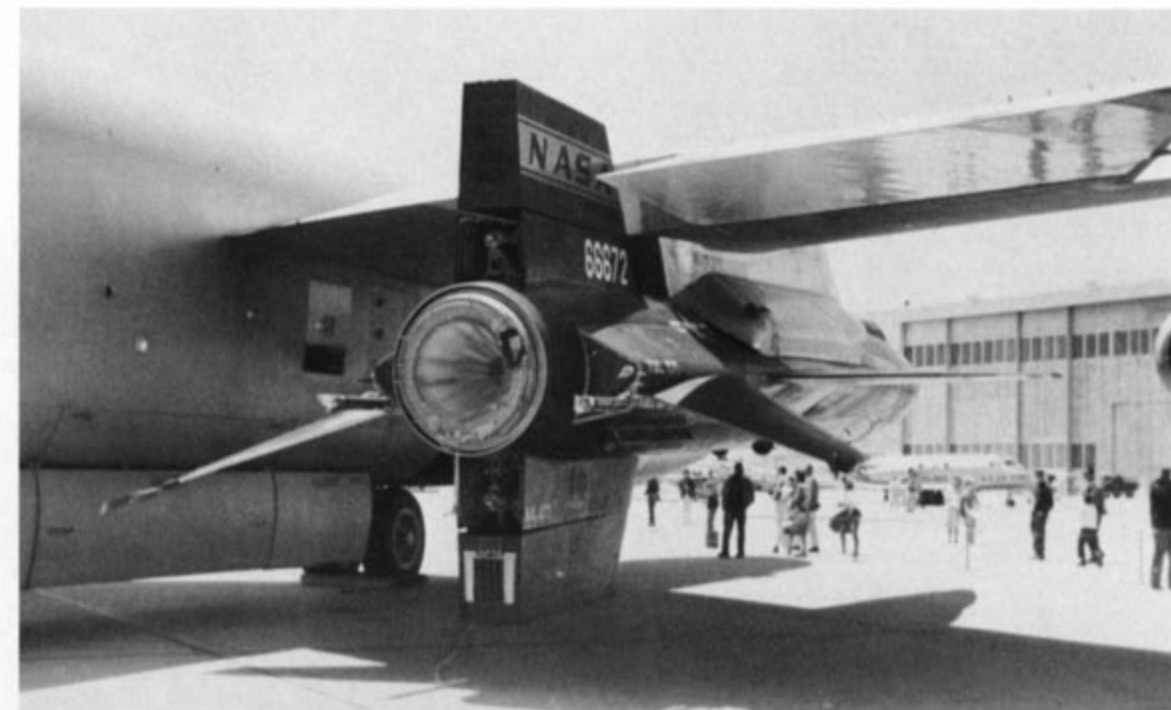
The last of three B-52As (52-003) was modified to carry and launch the North American X-15 rocket-powered research aircraft. Named "The High And Mighty One," the B-52A was modified with sensors, camera stations and visual monitoring ports and redesignated as an NB-52A. (Duane Kasulka)

None of the B-52As were ever assigned to the Strategic Air Command, even though SAC pilots flew the aircraft. The last B-52A (52-003) was later extensively modified and used as the launch aircraft in the X-15 rocket program under the designation NB-52A.

The X-15 was mated to the NB-52A on a specially designed launch cradle/pylon assembly. The mission marks on the fuselage indicate powered and unpowered flights. (Tom Brewer)



The trailing edge of the wing on the NB-52A was notched to clear the vertical fin of the X-15. The X-15's power plant had over 57,000 lbst and the aircraft eventually achieved a top speed of 4,520 mph in 1967. (Tom Brewer)



# B-52B

Rollout of the first B-52B occurred on 14 July 1954. The B-52B was the first true production aircraft and USAF ordered a total of fifty, including ten aircraft left from the B-52A order. The B-52B differed from the B-52A in that it was equipped with the 10,000 lbst J57-P-19W engines with water injection. The B-52B could also carry a pair of 1,000 gallon drop tanks under the outer wing panels. These tanks brought the total fuel capacity to 37,385 gallons (232,910 pounds). The first flight for a B-52B took place on 25 January 1955.

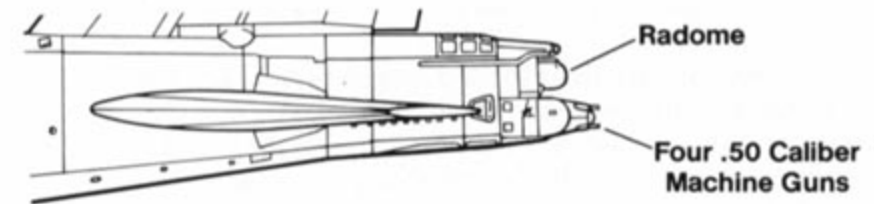
The B-52B went operational with Strategic Air Command when RB-52B (52-8711) was delivered to the 93rd Bomb Wing at Castle AFB, California on 29 June 1955. Castle would become the major training facility for B-52 flight crews in the years to come. Although the USAF accepted a total of fifty B-52Bs, twenty-seven were not "pure" bomber aircraft. The first ten aircraft were actually the last ten B-52A contract aircraft brought up to B-52B standards and twenty-seven were built to include a reconnaissance mission, under the designation RB-52B.

The RB-52B different from its bomber cousin in a number of ways. One of the major differences was that the RB-52B could carry a fully pressurized reconnaissance capsule in the bomb bay that housed the mission reconnaissance equipment (cameras, ELINT sensors, mapping radars, etc.) and two crewmen to monitor the equipment. Several different capsules could be carried depending on the mission. The photo reconnaissance capsule included a multiple camera installation plus a rack in the rear of the bomb bay for twenty-four M-120 photo flash bombs. The weather recon and ELINT capsules had electronic or radar sensors specifically designed for each mission type. The second major difference between an RB-52B and the B-52B was in the defensive armament. Where all bomber B-52s had a tail turret mounting four .50 caliber machine guns with an

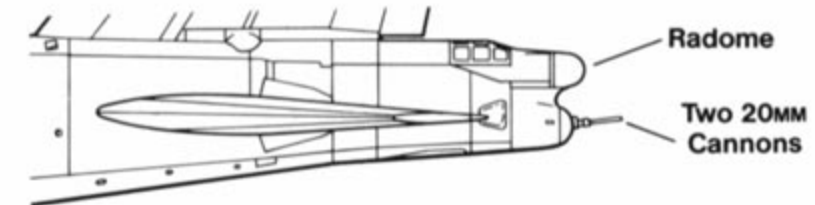
**The B-52B was the first true production variant with full avionics and combat capability. This B-52B has had the bomb bay doors removed during a maximum ordnance load test at Eglin AFB in May of 1956. (Marty Isham)**

## Rear Turrets

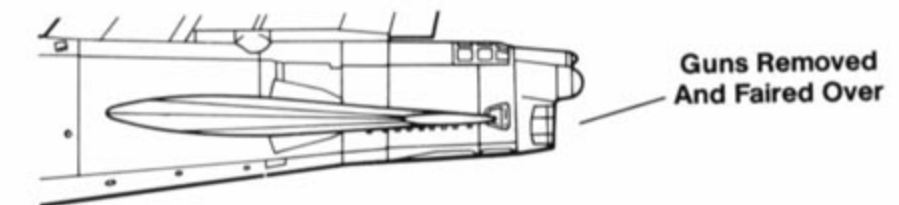
B-52A/B



RB-52B



NB-52B

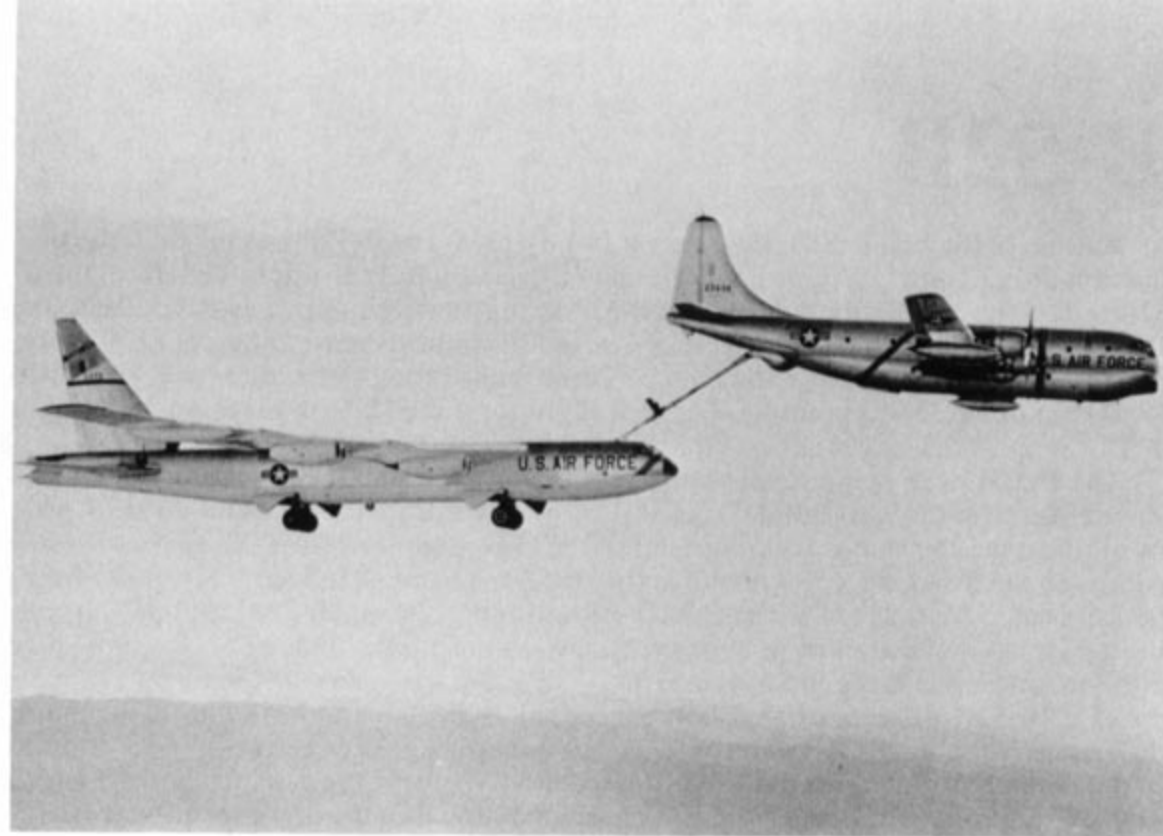


A-3A fire control system, the RB-52B had a twin M24-A-1 20MM cannon turret with an MD-5 fire control system. The turret and fire control system was the same as that used on the B-47.

The crew ejection system on the B-52 was unique. The pilot and copilot located in the forward portion of the cabin and the Electronic Warfare Officer (EWO) seated behind them (facing rearward) had upward ejection seats that fired through individual hatches in the upper fuselage. The radar-bombardier and navigator on the lower level of the cabin had downward firing ejection seats and exited the aircraft through hatches in the lower fuselage. The tail gunner exited by jettisoning the turret and "stepping out."

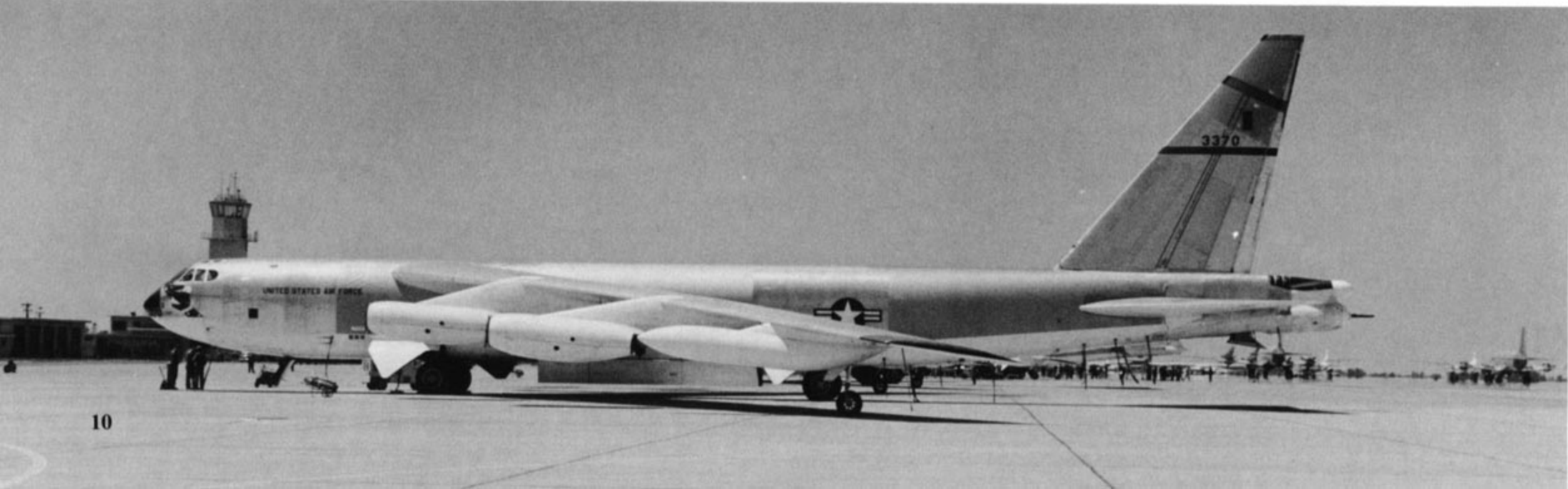
Following eighteen months of extensive operational and conversion training, SAC wanted to demonstrate the capabilities of its new bomber to the whole world, and the Soviets in particular, with a record flight. Operation POWER FLITE took place on 16 Jan 1957 when five 93rd Bomb Wing B-52Bs took off from Castle AFB for an around the world flight (without landing). Two of the B-52Bs were spare aircraft, one of which took the place of one of the mission aircraft when a mechanical malfunction forced it out of the record flight. The second "spare" left the record flight over the Atlantic Ocean during the first leg of the journey. The three remaining B-52Bs, led by MGEN Archie Old, Commander of 15th Air Force, returned to March AFB, California on 18 January 1957. They had flown around the world, a total of 24,325 miles in 45 hours and 19 minutes at an average speed of well over 500 mph. The B-52Bs were refueled by KC-97s five times during the record flight. GEN Curtis LeMay proudly announced to the world (and the Soviets) that Operation POWER FLITE was a demonstration of SAC's capability to strike any target on the face of the earth! Thirty-four years later to the day, SAC B-52s would demonstrate this very same capability to a dictator named Saddam Hussein.

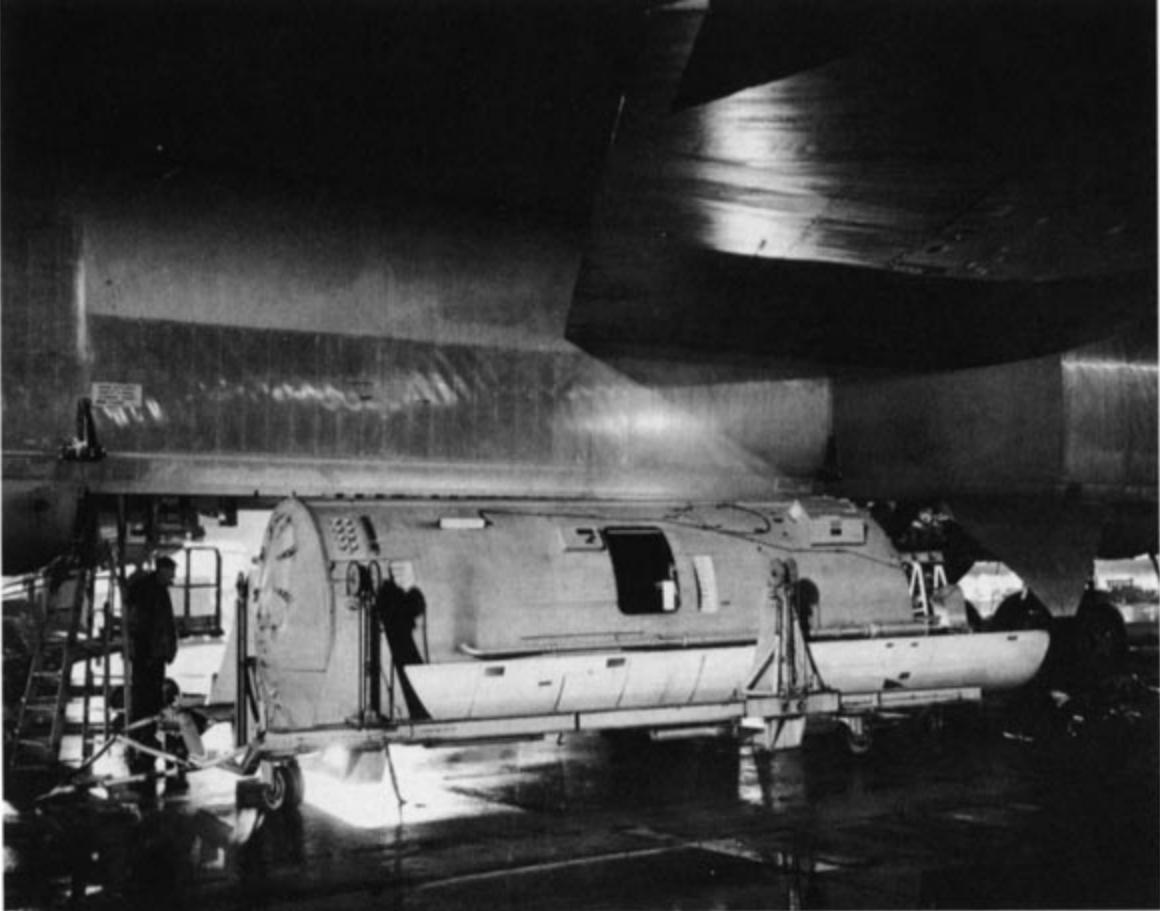
The B-52Bs were all retired during late 1965/early 1966. The very first B-52 delivered to SAC, B-52B (57-8711), was delivered to the Strategic Aerospace Museum at Offutt AFB, Nebraska where it remains on display.



A 93rd Bomb Wing RB-52B takes on fuel from a SAC KC-97 tanker. The KC-97 was so slow that the B-52 pilot had to lower the landing gear to keep the B-52 from overshooting the tanker aircraft. (Joe Bruch)

An RB-52B from the 93rd BW on the Castle AFB ramp during 1957. The RB-52Bs replaced the standard tail turret with two 20MM cannons and the MD-5 fire control system, the same armament found on the B-47. RB-52Bs could carry a multi-purpose reconnaissance pod in the bomb bay for intelligence and research data gathering. (Robert Esposito)





The RB-52B multi-purpose reconnaissance pod is ready for loading into the RB-52B bomb bay. The pod could carry multiple cameras and photo flash bombs for photo reconnaissance missions, multiple electronic sensors, ECM equipment, or weather research gear which was operated by an additional two man crew. (Joe Bruch)

This B-52B (52-008) was modified as an airborne launch vehicle and redesignated as an NB-52B. The aircraft sits on the ramp at Edwards AFB during 1967 with the Martin HL-10 Lifting Body under the underwing pylon. The HL-10 was an early attempt at blended-body aerodynamics that eventually led to both the Stealth Fighter and the Space Shuttle. (Mick Roth)



MGEN Archie Old, Commander of 15th Air Force, taxis the "Lady Luck II" in at March AFB on 18 June 1957 following an around the world flight during Operation POWER FLITE. GEN Old led three 93rd BW B-52Bs on the record 24,325 mile flight, averaging well over 500 mph. (USAF)

The NB-52B over Edwards AFB with one of the prototype PEGASUS launch vehicles on the underwing pylon. The NB-52B carried the PEGASUS, a NASA development, to about 45,000 feet where it was launched to put small satellite payloads into orbit. The NB-52B had the tail turret deleted and faired over. (Marty Isham)



# B-52C

The first of thirty-five B-52Cs came off the Seattle assembly line on 7 December 1955. The B-52C was the first B-52 to have the entire underside of the aircraft painted Gloss White to reflect nuclear radiation and heat. The B-52C also carried 3,000 gallon wing tanks in place of the 1,000 gallon tanks used on the B-52B model. This brought the total fuel capacity to 41,385 gallons (258,910 pounds). With the added weight of the larger drop tanks and the Gloss White paint, the gross weight of the B-52C rose to 450,000 pounds. To compensate for the additional weight, the B-52Cs were powered by 10,000 lbst J57-P-29WA turbojets with improved water injection. In addition to these differences, there were a number of minor changes in the avionics and control systems, both offensively and defensively. Improvements included installation of an A42G-11 autopilot, the N-1 compass, plus improved ECM capabilities. The B-52C was capable of carrying the multi-mission reconnaissance capsule in the bomb bay, but it was never designated as an RB.

The first flight of the B-52C took place on 9 March 1956 and the 42nd BW at Loring AFB, Maine became the second operational B-52 wing in June of 1956. The B-52Cs of the 42nd BW took part in Operation QUICK KICK, a record 13,000 mile flight around the perimeter of the continental United States in November of 1956. With improvements such as the AN/ASQ-48 bomb-nav system, the B-52C was virtually identical to the later B-52D. B-52Cs served in B-52D squadrons that had aircraft committed to combat in Southeast Asia. The B-52C remained in service until 29 September 1971 when the last aircraft was ferried to Davis-Monthan AFB in Arizona.

The fourth B-52C parked on the Boeing Seattle ramp in November of 1956. The B-52C was the first to come from the factory painted with the Gloss White anti-flash scheme and the first variant to carry 3,000 gallon underwing drop tanks. (Robert F. Dorr)



A B-52C of the 7th Bomb Wing at Carswell AFB, Texas on the ramp at McCoy AFB, Florida, in November of 1970. The aircraft was visiting McCoy for the SAC bombing competition known as GIANT VOICE. With the later addition of the AN/ASQ-48 bomb-nav system, the B-52C model was a virtual twin to the B-52D and a number of squadrons had both types in service. (Ken Buchanen)

This B-52C of the 99th Bomb Wing at Westover AFB remained in service long enough to receive the strategic nuclear camouflage paint scheme. The B-52C was retired from service in September of 1971. (Tom Hildreth)



# B-52D

In its original strategic bomber form, the B-52D was virtually identical to the earlier B-52C. The major difference was the deletion of the reconnaissance equipment capsule and the reconnaissance mission. All systems remained the same, as did the combat weight, range, and power plants. There was one change, however, in the location of the production line. With Boeing's Seattle plant building both the B-52C and KC-135 jet tanker, along with completion of the production run on both the B-47 and the KC-97 tanker, the USAF authorized the building of B-52 aircraft at the Boeing plant in Wichita, Kansas. The first B-52D came off the Wichita assembly line on 7 December 1955, the same date that the first B-52C came off the Seattle assembly line. The first flight of a Wichita-built B-52D took place on 14 May 1956, with the first aircraft being delivered to the 93rd BW at Castle AFB one month later. The first flight of a Seattle-built B-52D took place on 28 September 1956. Boeing built a total of 170 B-52Ds: 69 at Wichita and 101 at Seattle.

All B-52Ds were delivered in the standard SAC paint scheme of Natural Metal uppersurfaces with Gloss White anti-flash paint on the undersurfaces. This paint job and the strategic mission of the B-52D lasted until the Vietnam War when both the paint scheme and the mission were drastically and forever altered. With the war in Southeast Asia heating up rapidly following the Gulf of Tonkin Incident, the government decided to commit B-52 bombers to the conflict. Not unlike the B-29 mission in the Korean War, the B-52s would be used in a tactical role, carrying conventional munitions. In other words, they would dump tons of bombs on Viet Cong troop concentrations and supply points. During 1965, SAC committed B-52Fs to the conflict under Operation ARC LIGHT.

With B-52Fs operating in SEA, SAC made the decision to modify the B-52D fleet for the conventional mission. This decision was based on the fact that there were over twice as many B-52Ds available for service than B-52Fs. SAC authorized modification of the entire B-52D fleet to meet the BIG BELLY program specifications. The BIG BELLY modification was not an increase in the size of the bomb bay, either internally or externally, but rather a modification of the conventional bomb rack attachment points so that the aircraft could use the new "high density" bomb racks, also known as "clips." Each "clip" could hold twenty-eight 500 pound or fourteen 750 pound bombs.

The other modification called for in the BIG BELLY program was rewiring the external pylons for conventional weapons delivery. A fully loaded BIG BELLY B-52D could carry 108 bombs, including twenty-four on the underwing pylons. During the BIG BELLY program an extensive ECM equipment upgrade was added to the defensive system for monitoring North Vietnamese SA-2 SAM and AAA radars. Lastly, the aircraft was given a tactical camouflage paint scheme of Tan, Dark Green and Medium Green uppersurfaces with Gloss Black undersurfaces and vertical fin. The BIG BELLY program began in December of 1965 and was concluded on 13 September 1967. The modified B-52Ds began to replace the B-52Fs on ARC LIGHT strikes in April of 1966 when the 28th BW and 484th BW became operational at Andersen AFB, Guam. B-52Ds averaged over 400 sorties per month during 1966.

Operating initially from Andersen AFB, BUFF crews flew twelve hour missions almost daily until a squadron of B-52Ds began operations from the Royal Thai Naval Air Base at U-Tapao in April of 1967. ARC LIGHT crews were rotated home after a six month tour of duty. It was not unusual to find SAC crew members with between 300 and 400 ARC LIGHT missions to their credit for their six month tour. Each ARC LIGHT mission began with a two to three hour briefing and pre-flight of the aircraft. Then it was 2,500 miles to the target in South Vietnam, Laos, or Cambodia. Then the same mileage

back to Guam, followed by a couple of hours of debriefing. The missions themselves were usually boring and quite routine. ARC LIGHT strikes were carried out with three aircraft formations known as "cells." An ARC LIGHT "cell" could saturate an area 3,000 yards long and 1,000 yards wide with 500 and 750 pound bombs, creating, what was called by photographic intelligence analysts doing bomb damage assessment, a "sandbox." In 1968, SAC had committed over seventy B-52Ds to the ARC LIGHT program. In March of 1968, following the Tet Offensive, B-52 sorties rose to 1,852 and, for the first time, B-52Ds were used in close support of ground units. Bombing "just outside the wire," the B-52Ds saved countless outposts, such as Khe Sanh, from being overrun.

ARC LIGHT strikes continued almost daily in support of both US and ARVN troops through 1971, although this was dramatically changed in the Spring of 1972. On 30 March 1972, North Vietnam launched an all-out offensive against South Vietnam. SAC answered the attack by committing the entire B-52D fleet, 110 aircraft, to the conflict under Operation BULLET SHOT. President Nixon withdrew all operational limitations and authorized B-52 strikes inside North Vietnam. SAC also augmented the B-52D force with the commitment of two thirds of the B-52G fleet. This brought the total number of B-52s available for ARC LIGHT missions or for LINEBACKER missions against strategic targets inside North Vietnam, to over 200 aircraft. On 16 April 1972, B-52s struck rail and shipping targets in the Haiphong and Thang Hua areas — the first time North Vietnam had been bombed since 1968, and the first time B-52s had ranged deep into North Vietnam. These missions continued through the Summer of 1972 in the vain hope of driving the North Vietnamese to the truce table. North Vietnam was pressing its advantages against the outnumbered ARVN forces that would have brought a military victory for the Communist North.

Finally, an exasperated President Nixon ordered Operation LINEBACKER II, an eleven day bombing campaign against every strategic target in North Vietnam. On 18 December 1972, at 1451 local time, eighty-seven B-52s left Andersen AFB on Guam.

**Tommy's Tigator** on the ramp at Boeing Field during 1958. The B-52D was the first of the series be built at both the Boeing-Seattle and Boeing-Wichita plants. **Tommy's Tigator** was involved in two live-fire tests of the H-bomb. (AFM)



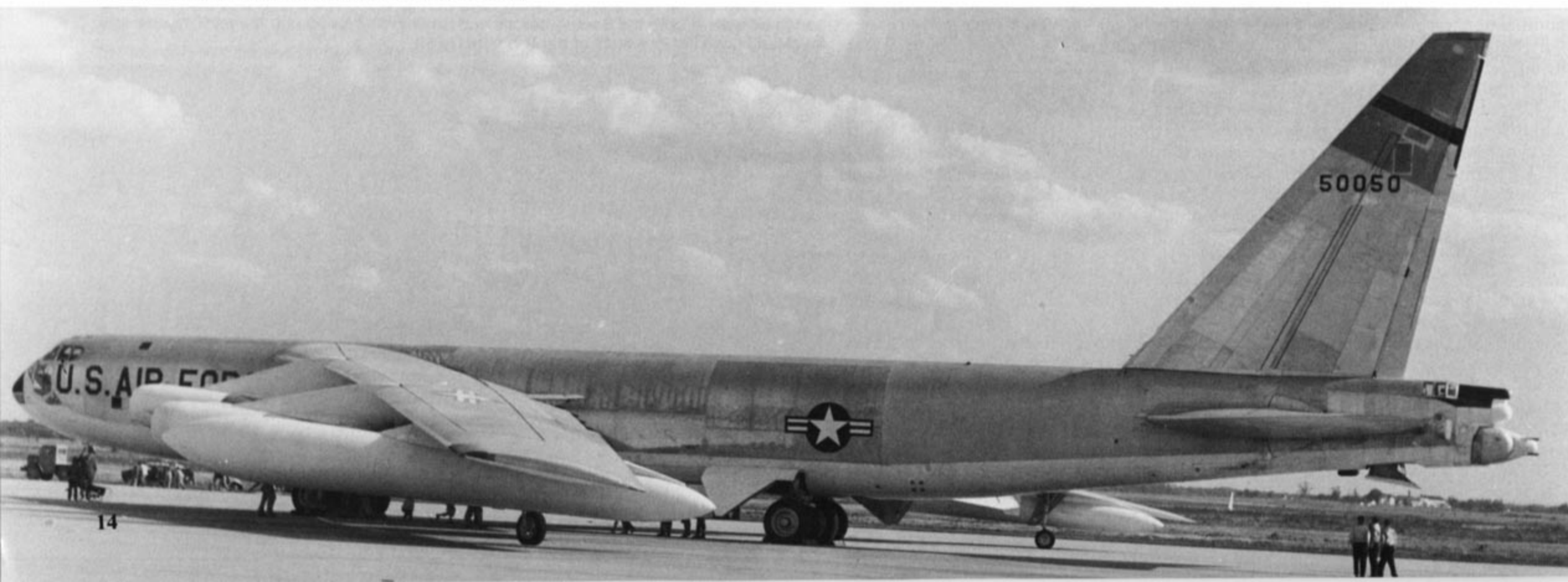
They were joined over Yankee Station by an additional forty B-52Ds from U-Tapao, Thailand. The targets were airfields, SAM sites, and rail yards in the Hanoi area — and Radio Hanoi! The next night ninety-seven B-52s again struck rail and power targets in the Hanoi area. The following night saw another 100 BUFFs strike deep into North Vietnam. For eleven days the B-52s pounded North Vietnamese targets — targets that had previously been “off limits” to US air attacks.

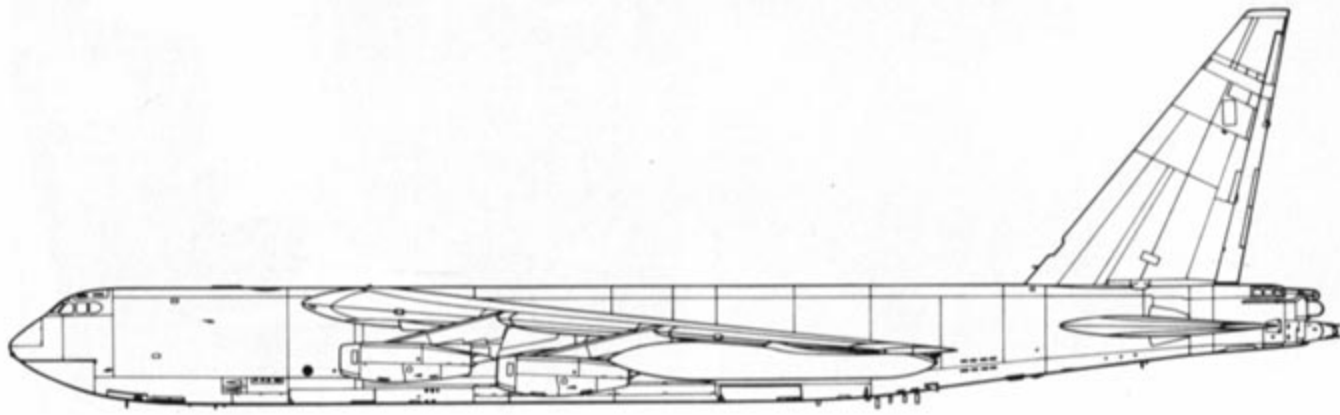
The North Vietnamese threw everything they had at the attacking B-52s. Support aircraft such as WILD WEASEL F-105s, MiGCAP F-4s and Navy IRON HAND A-6s kept the North Vietnamese air defense system off balance, eventually bringing it to its knees. With F-105 WILD WEASELS blinding the NVA SAM radars, the North Vietnamese began launching the missiles unguided and in salvos. Over 1,000 SAMs were fired at the B-52s during the eleven days of LINEBACKER II. B-52 sorties numbered 729 and the BUFFs suffered losses which, at first glance, appeared quite high: fifteen B-52s shot down. Actually, that was less than 2% of the total B-52 sorties launched — less than either the B-17/B-24 loss rate in the Second World War or the B-29 loss rate in Korea. The B-52s dropped over 49,000 bombs on thirty-four strategic targets, destroying over 1,600 military structures. B-52 tail gunners claimed five MiG interceptors as shot down, although only two were “officially” confirmed. The North Vietnamese claimed some 1,300 civilian casualties, which in itself is amazing when you consider the amount of ordnance coming down from not only the B-52s, but also the hundreds of support aircraft. Add in the over 1,000 SAMs and hundreds of thousands of anti-aircraft artillery rounds that had to come down someplace. One can now start to comprehend the extremely accurate bombing campaign the B-52 crews conducted.

This 99th Bomb Wing B-52D was the second Boeing-Wichita built aircraft and was delivered to SAC during early 1956. The huge size of the 3,000 gallon underwing tanks did not leave much in the way of ground clearance. (Bob Esposito)



A 92nd BW B-52D crew deplanes following an airborne alert mission during the early 1960s. SAC's “two-man policy” was in effect and the Aircraft Commander and Bombardier carry the box containing mission codes and arming materials for the nuclear weapons carried onboard the B-52D. (C.B. Goodie via Joe Bruch)





## Specifications

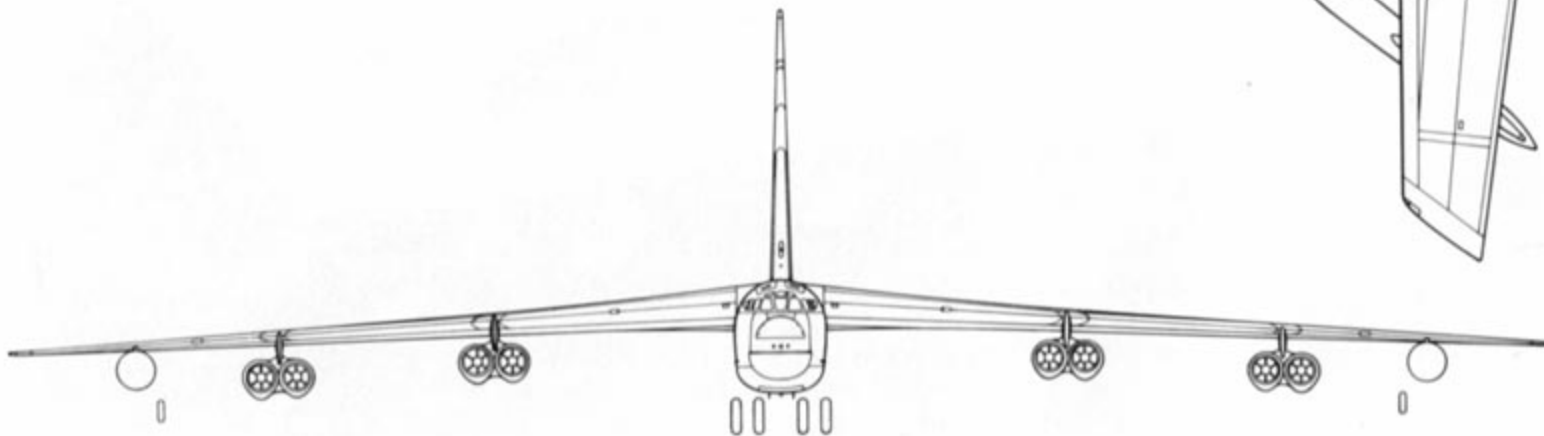
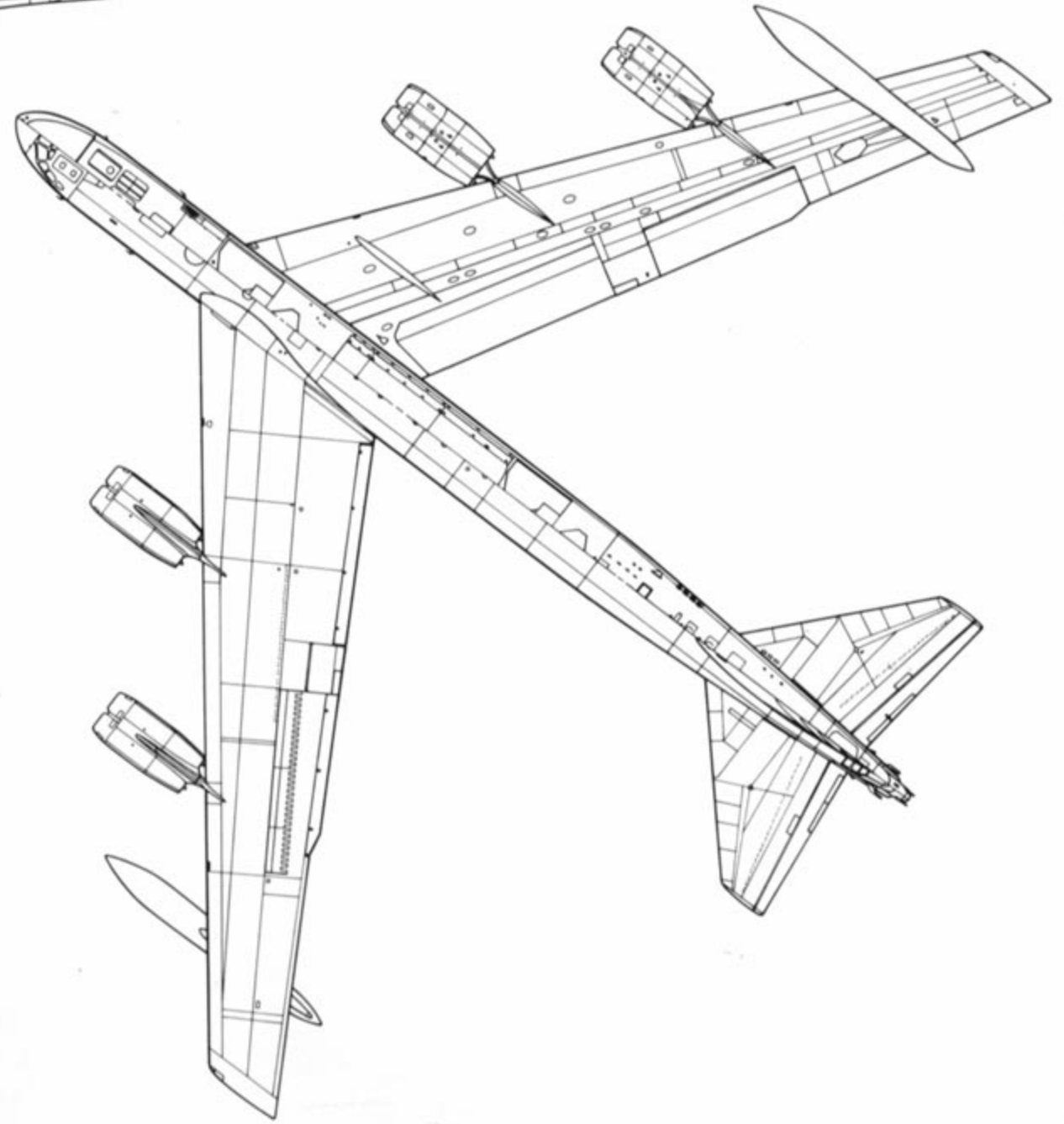
### B-52D Stratofortress

**Wingspan** ..... 185 feet  
**Length** ..... 156.58 feet  
**Height** ..... 48.25 feet  
**Empty Weight** ..... 173,599 pounds  
**Maximum Weight** ..... 450,000 pounds  
**Powerplants** ..... Eight 13,759 lbst J57-P-43W turbojet engines

**Armament** ..... Four .50 caliber machine guns

#### Performance

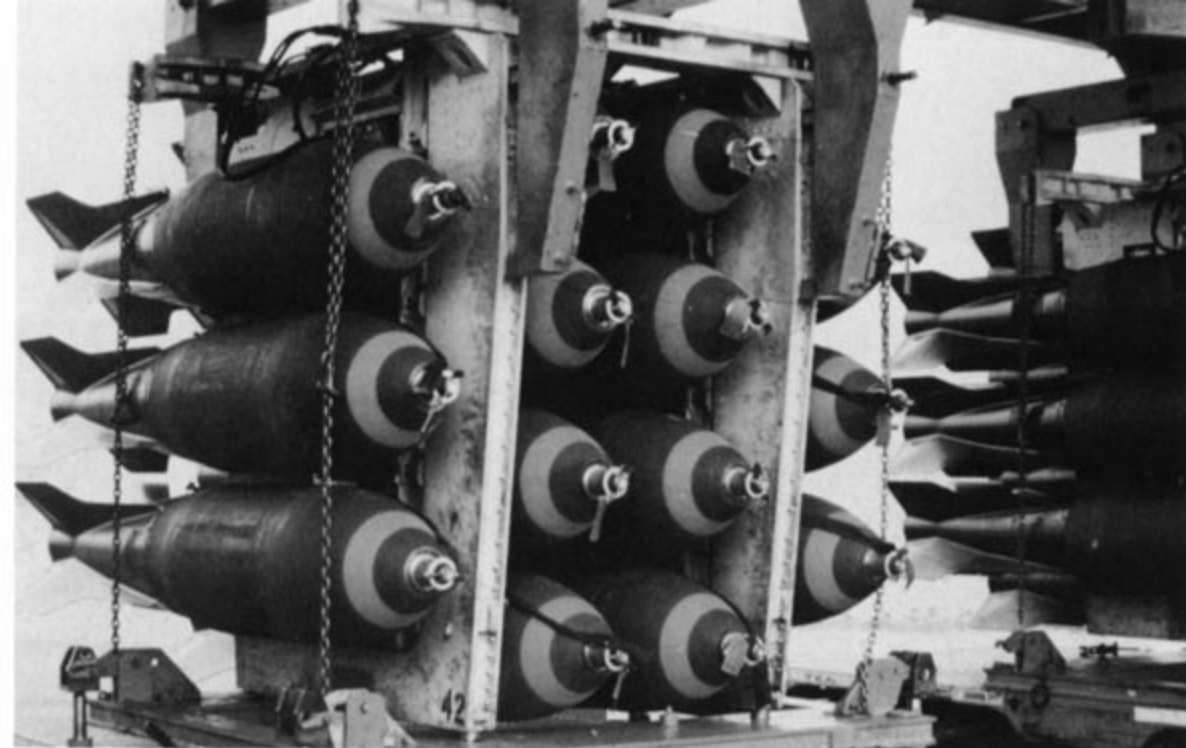
**Maximum Speed** ..... 636 mph  
**Service ceiling** ..... 46,000 feet  
**Range** ..... 6,326 miles  
**Crew** ..... Six







*First Lady Of Glasgow*, a B-52D of the 99th BW on the ramp at Vandenberg AFB during 1962. The aircraft was one of 101 B-52Ds built by Boeing-Seattle. Nose "art" was very rare on SAC aircraft until the Vietnam War. (Frank MacSorley)



A full "clip" of fourteen M117 750 pound bombs ready for loading into a BIG BELLY B-52D at U-Tapao in 1969. The BIG BELLY modifications increased the maximum bomb load from fifty-one to 108 bombs. (LTC Barry Miller)

A pair of B-52Ds fly in close formation. B-52s rarely flew tight formations until the advent of ARC LIGHT missions in Vietnam, since nuclear strike missions were one plane/one target flights. (C.B. Goodie via Joe Bruch)



A 4133rd BW (P) B-52D on its parking spot at Andersen AFB, Guam with a full load of Mk 82 bombs on the underwing pylons and "clips" of M117s ready for loading into the bomb bay. With M117 bombs in the "clips," the maximum load was sixty-six bombs. (Robert F. Dorr)



On 29 December 1972, PEACH CELL 2 landed at Andersen AFB at 1250 local time - the final LINEBACKER II B-52 mission. The B-52s had accomplished in the eleven day LINEBACKER II campaign what eight years of fighter-bomber attacks could not. The North Vietnamese were more than willing to settle the conflict at the Paris Peace talks, at least until they were sure that the American air power would not be available to stop a future attack. On 28 January 1973, the Vietnam cease-fire agreement was signed. B-52Ds continued ARC LIGHT missions against the Pathet Lao Communists in Laos until 22 February 1973 when the Laos cease-fire went into effect. On 15 August 1973, the final B-52 ARC LIGHT mission came home following a strike against the communist Khmer Rouge in Cambodia. For the B-52 crews, the war in SEA was over. One wonders what might have been had the B-52s been used for this type of mission in 1965. There might not have been any need for a Black Wall.

When the war in SEA ended for U.S. forces in 1973, the B-52D force went back to its nuclear mission, although they all retained their tactical camouflage and BIG BELLY modified bomb bays. Several modifications took place following the end of the war. The airframes were tired from combat flight hours. Indeed, the B-52D airframes were just plain worn out with many patches covering the well-wrinkled skin on the Black-bellied BUFFs. Originally designed to be phased out of service in 1971, by the end of the SEA air war most of the B-52D fleet had built up almost twice as many hours as their original projected 5,000 hour life span. Boeing and USAF launched a program known as PACER PLANK, which would add almost 7,000 hours to the life of a B-52D. The best "low time" B-52Ds were chosen for the PACER PLANK program, eighty aircraft in all. The eighty B-52Ds chosen for the program were sent to Boeing's Wichita plant for what amounted to a full restoration of the airframe. The rest of the fleet went into "active" storage under Project CRESTED DOVE before finally being retired in the Fall of 1978.

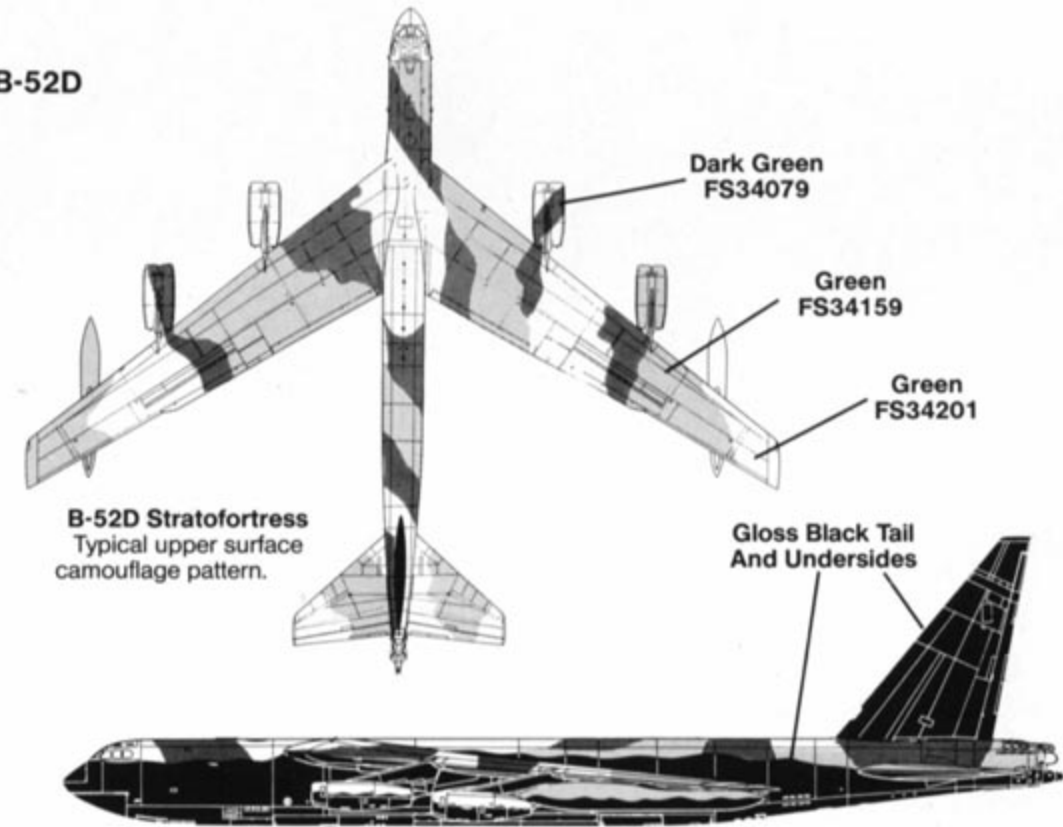
PACER PLANK called for removal of the wings which were then stripped of any damaged, bent or worn out aluminum skinning. The wings had all new leading and trailing edges, new upper and lower wing skin panels and the fuselage was given the same treatment. All damaged skin areas were replaced with brand new, heavier gauge aluminum alloy panels. Old wiring was stripped from the aircraft and replaced and all systems were brought up to date. The PACER PLANK program called for the scrapping of 30,000 pounds of parts from each B-52D, at a cost of \$2.6 million per aircraft. Although the new heavier skin added almost 3,400 pounds to the gross weight of the aircraft, the speed and range actually increased slightly due to the smoother airflow over the previously patched and/or wrinkled skin.

Other post-war modifications included the capability to carry and launch the GBU-15 electro-optical guided bomb and addition of the Digital Bombing Navigation System during 1980. But the fate of the B-52D was sealed. Old age had crept up on the BUFF. The 20th BMS at Carswell AFB was the last operational unit to fly the B-52D with the final operational B-52D mission being flown on 1 October 1983. Most of the B-52D fleet went into storage at Davis-Monthan AFB. But at least twenty-four B-52Ds have been preserved as memorials to the contribution the Big Ugly Fat Fella made during the Vietnam War.

**A B-52D unloading Mk 82 500 pound bombs on a target in the South Vietnamese jungle. Fully loaded with Mk-82s, the B-52D could carry 108 bombs. B-52s flew in three ship formations called "cells" during ARC LIGHT operations and a "cell" could unleash a total of 324 500 pound bombs (162,000 pounds) on the unsuspecting VC below. (Robert F. Dorr)**

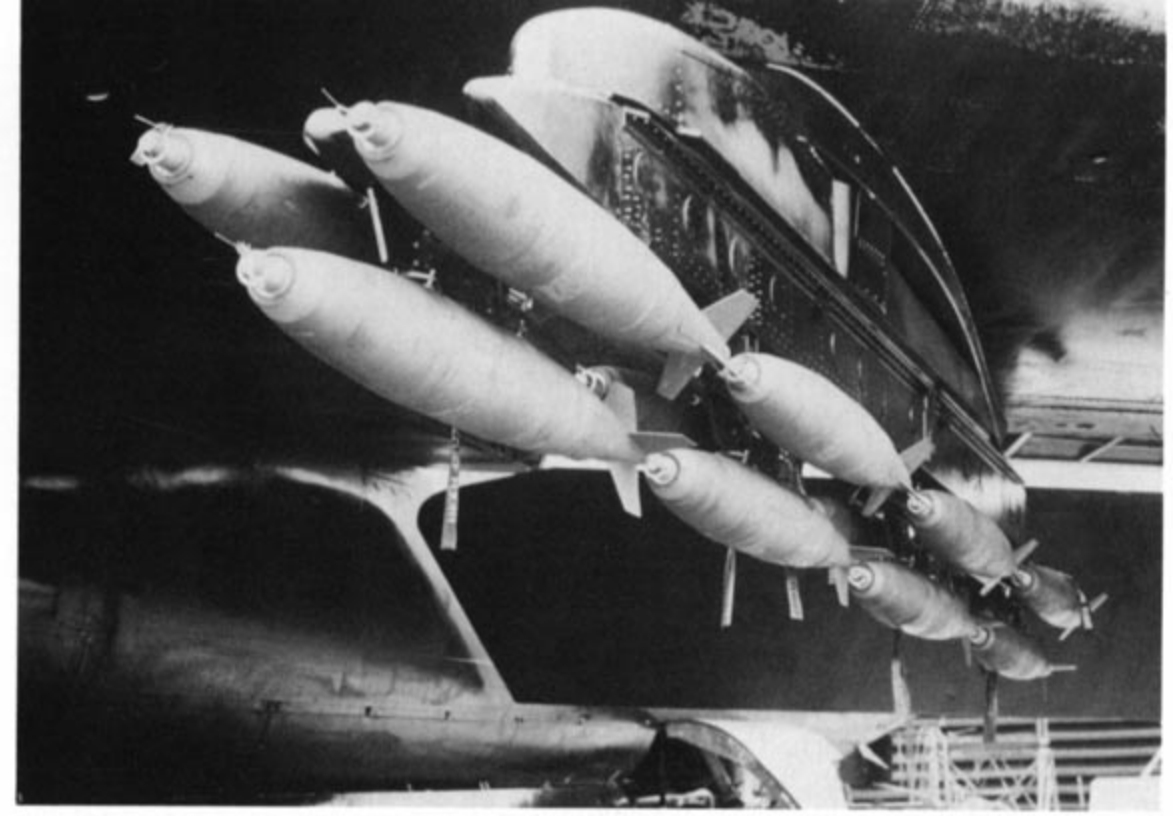
## SEA Camouflage Pattern

B-52D





Crew chiefs and maintenance personnel work on the engines of a B-52D of the 4258th SW to make sure it is able to make the next ARC LIGHT mission out of U-Tapao during 1969. The engine hatches are hinged and can be completely removed for easy access to any system. (AFM)



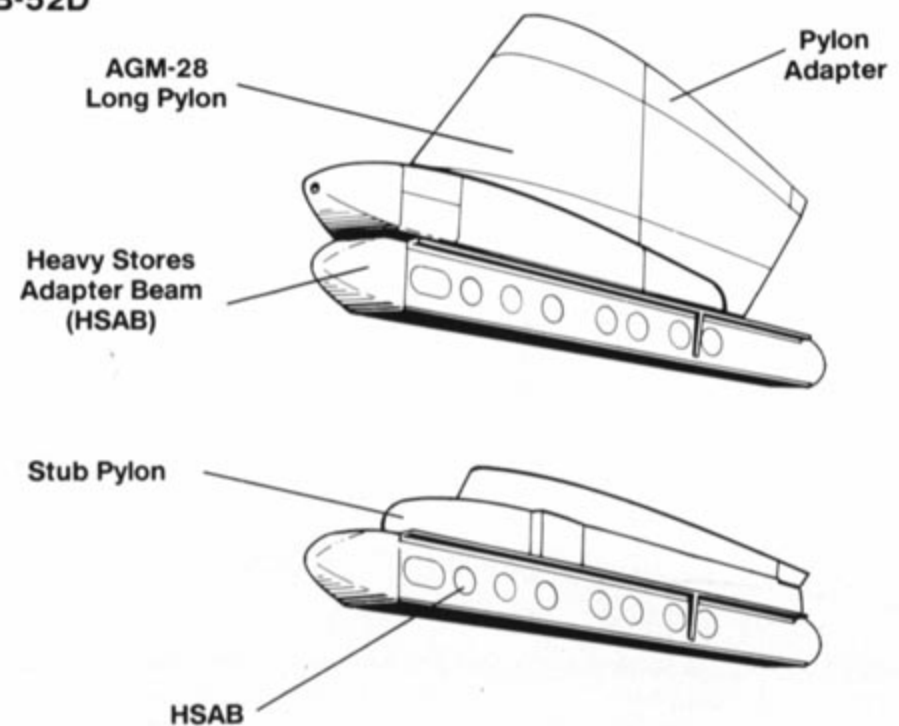
Later in the Vietnam Conflict, special short "stub pylons" were developed for the carriage of conventional munitions. The "stub" pylon was developed because most of the AGM-28 Hound Dog pylons were being used by SAC nuclear alert aircraft. (LTC Barry Miller)

Armament specialists check the electrical circuits controlling the drop sequence of the Multiple Ejector Racks (MERs). The MERs are attached to Heavy Stores Adapter Beams (HSABs) which are, in turn, mounted to the AGM-28 Hound Dog missile pylons. (AFM)



### Underwing Pylons

B-52D





Readying a "clip" of twenty-eight Mk 82 500 pound bombs for installation in a BIG BELLY B-52D Stratofortress. Three of these High Density Bomb Racks, or "clips," can be loaded into the bomb bay. (AFM)

B-52Ds of the 307th SW line the ramp at U-Tapao Royal Thai Naval Air Force Base during November of 1970. B-52Ds began operations from U-Tapao in April of 1967. The revetments were necessary since North Vietnamese sapper teams did rocket the BUFF base. (LTC Barry Miller)



A fully loaded 43rd SW B-52D leaves Andersen AFB enroute to targets in Vietnam during 1970. This mission would involve a 5,400 mile round trip flight. The Black undersurface camouflage shows signs of extreme wear and paint peeling on the engine intakes and control surfaces. (Warren Skonieczny)

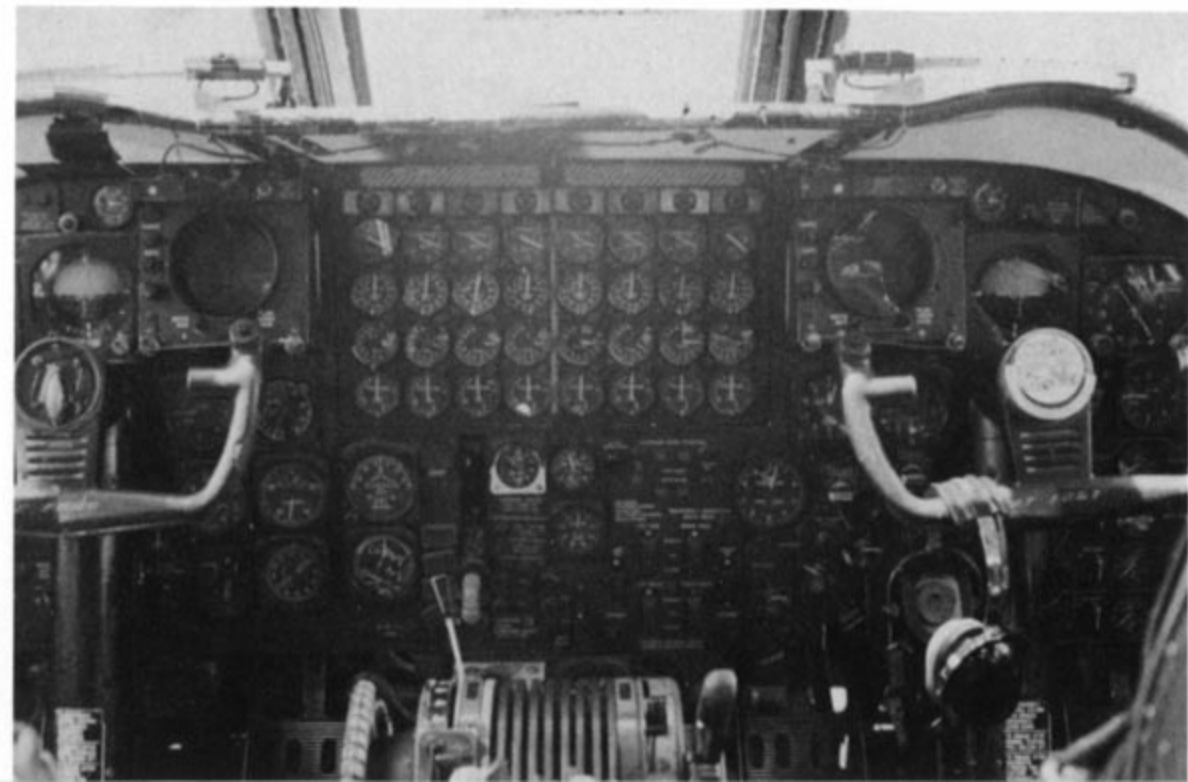


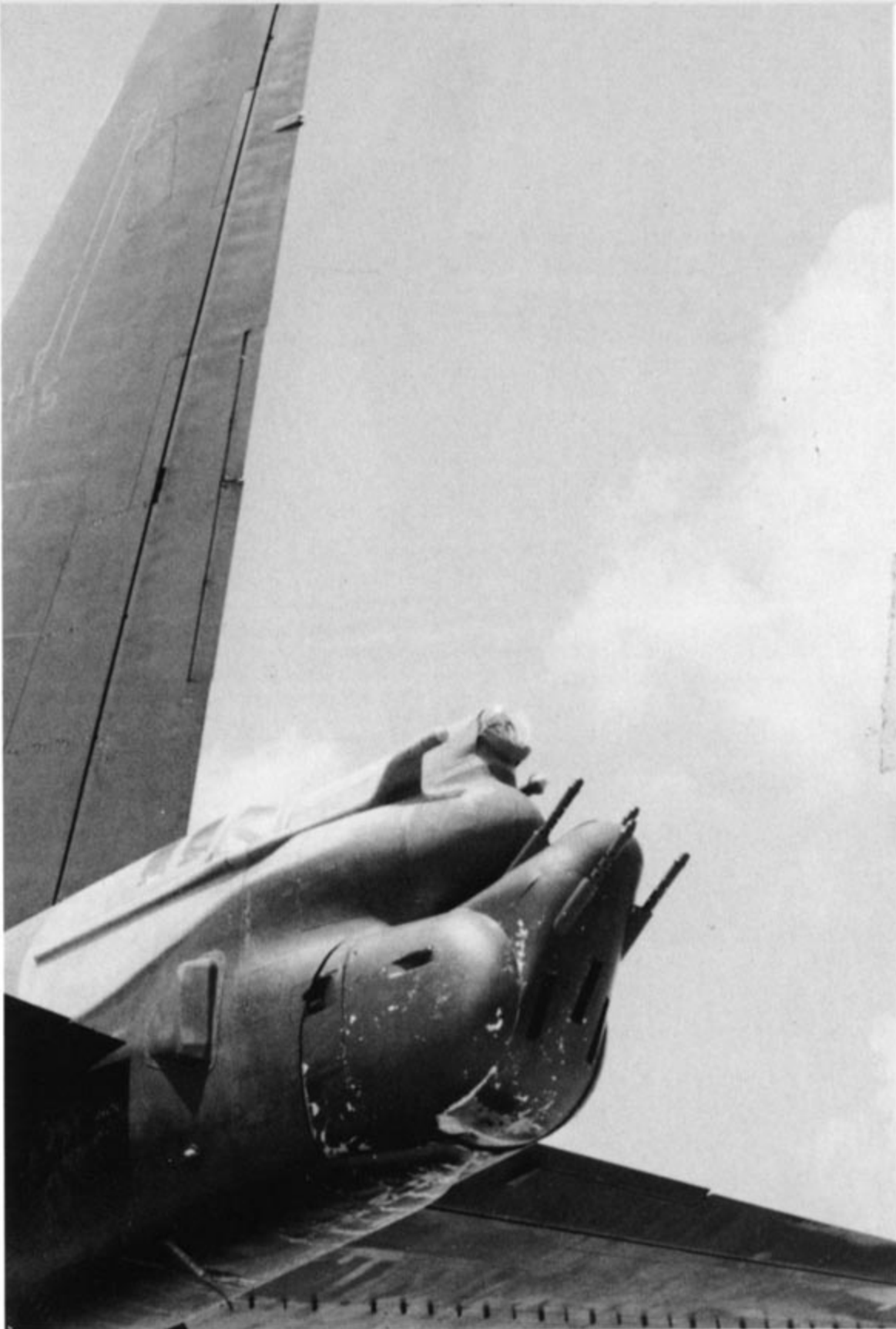
Even though the BUFFs carried internal electronic counter-measures (ECM) gear, WILD WEASEL escorts like this F-105G of the 561st Tactical Fighter Squadron were required for any cell operating in North Vietnam during the LINEBACKER campaign of 1972. (Marty Isham)

A trailer full of M117 750 pound iron bombs waits to be loaded on the underwing MERs of a B-52D at U-Tapao during 1969. Each underwing pylon could hold twelve 500 or 750 pound bombs, CBUs, or napalm canisters. (AFM)



The instrument panel of a B-52D Stratofortress was Flat Black. The logo on the control wheel is STRATOFORT, with the remainder of the STRATOFORTRESS logo worn off. (I. Globstad)





The tail gun turret of a B-52D had four .50 caliber machine guns with 600 rounds per gun. B-52 tail gunners claimed a total of five NVAF MiGs during the LINEBACKER II operations in December of 1972. (I. Globstad)



Armament technicians loading M117 750 pound iron bombs on the underwing MER of a B-52D. Although a fully loaded MER could be loaded on the HSAB, the usual practice was to load individual bombs with an MJ-1 bomb loading tractor. (AFM)

With over 5,000 combat hours, this B-52D, aircraft number 100, flew many ARC LIGHT missions, dropping hundreds of thousands of tons of bombs before being retired as a permanent memorial to the ARC LIGHT crews at Andersen AFB, Guam during 1974. (USAF)





**This 4133rd BW B-52D (56-601) suffered a mechanical failure and could not make the long flight back to Andersen AFB. The aircraft landed at Da Nang, lost its brakes and overran the runway. The aircraft ran into the mine field and was totally destroyed. The tail gunner was the only survivor. (Joe Bruch)**

**When the American involvement in SEA ended in 1973, most of the B-52D force returned to a normal nuclear alert mission still wearing their SEA camouflage. This B-52D carries uncamouflaged AGM-28 Hound Dog missiles on the underwing pylons. (Joe Bruch)**



**The 4258th SW B-52D revetments at U-Tapao, Thailand during 1970. The revetments only covered to the top of the fuselage, leaving the 48 foot vertical fin exposed. The Black under-surface camouflage was obviously applied without benefit of masking. (AFM)**



In the late 1970s many B-52Ds were modified to carry and launch the GBU-15 electro-optically guided bomb. This B-52D (55-676) carries a pair of GBU-15s on each MER and carries one NVAF MIG kill marking under the SAC badge. (AFM)



A B-52D of the 43rd SW carries both the 8th Air Force and 43rd Strategic Wing badges on the tail. The aircraft was specially painted when it represented the 43rd SW at the 1974 GIANT VOICE bombing competition held at McCoy AFB. (Ray Leader)

A 7th Bomb Wing BUFF on final approach with the flaps fully extended. By 1980 most of the remaining B-52D fleet had gone through the PACER PLANK program, which literally rebuilt the entire airframe. (Robert F. Dorr)



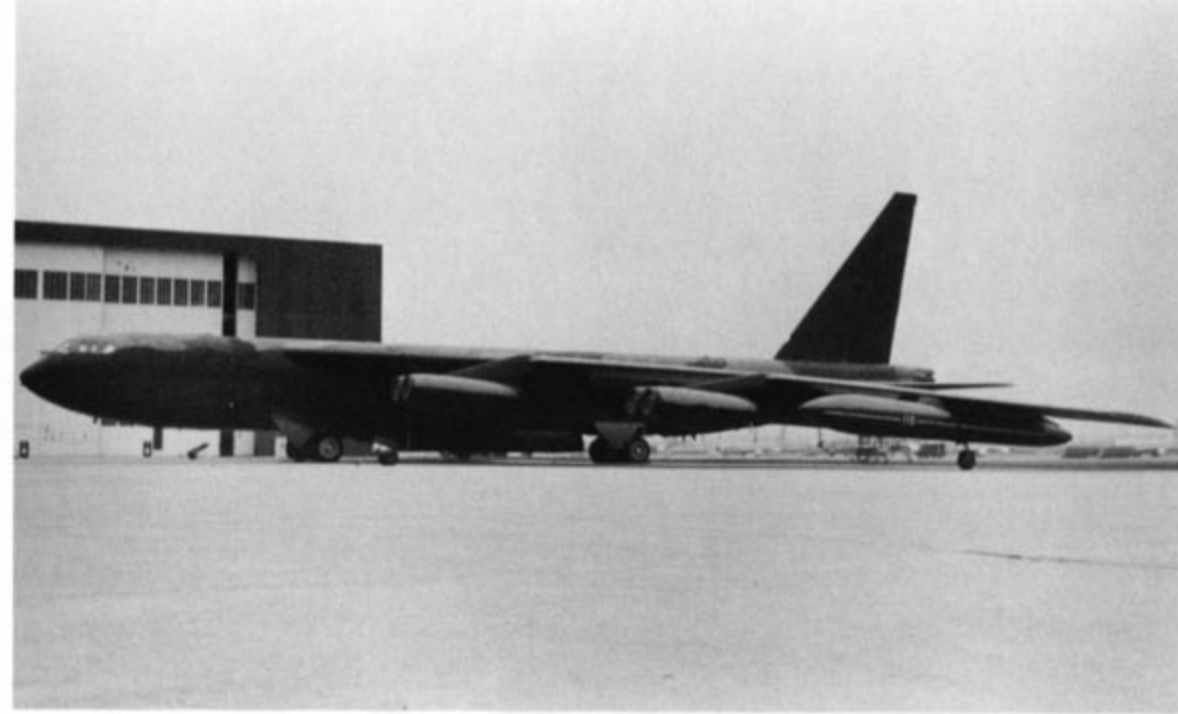
"The Pink Panther," a B-52D of the 325th Bomb Squadron based at Fairchild AFB on the ramp at McCoy AFB for the 1970 GIANT VOICE competition. Nose art became common on SAC aircraft involved in the GIANT VOICE worldwide bombing competition. (Ken Buchanan)





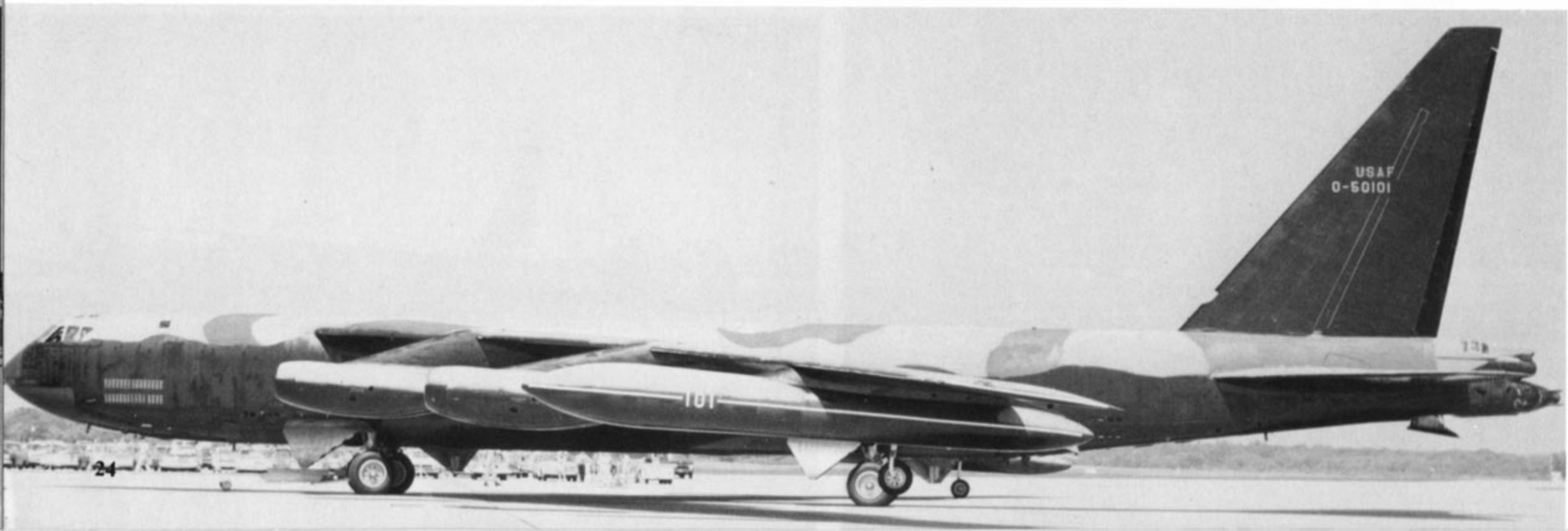


To assure the Soviets that B-52Ds were being destroyed in accordance with the SALT Treaty, many aircraft were destroyed through the use of shaped explosive charges which blew off the wings and cut the fuselage into sections. This B-52D was destroyed at Dyess AFB during the early 1980s. (Joe Bruch)



This B-52D of the 99th Bomb Wing carries over one hundred mission markings in Red on the fuselage side. The B-52s flew nearly every day and it was not unusual for individual aircraft to rack up over one hundred missions in a short period. (Robert Esposito)

This war weary B-52D of the 99th Bomb Wing flew over thirty-eight (only thirty are marked on the fuselage) missions over Vietnam and Southeast Asia during 1968. The B-52s flew missions in support of troops-in-contact as well as interdiction missions against the Ho Chi Minh trail. (Robert Esposito)



# B-52E

The first of 100 B-52Es came off the Seattle assembly line on 3 October 1957, followed two weeks later, 17 October, by the first Wichita-built aircraft. The B-52E was virtually identical to the B-52D model except for some internal systems changes. The AN/ASB-15 Bomb Navigation System was replaced by the AN/ASB-4, and the AN/APN-108 Doppler radar system was replaced by the AN/APN-89A, plus other avionics systems updates. First flights for both the Seattle and Wichita-built aircraft came the same day that they came off the assembly line. The B-52Es were delivered to the 6th BW at Walker AFB in December 1957.

With the B-52E came a change in the tactics used by the SAC B-52 crews. The development of low level penetration tactics for the B-52 was the direct result in the rapid development of the surface-to-air missiles by both Eastern and Western forces. Advancements in the low-level Doppler radar system made the low level penetration a viable strike tactic for SAC. Coming in at 200 foot altitudes and lower, the huge B-52 could "hide" behind hills and in valleys from the SAM search radars. Combined with the use of the AGM-28 Hound Dog missile, the B-52 force could now attack at least four separate targets and still retain a very real survivability rate.

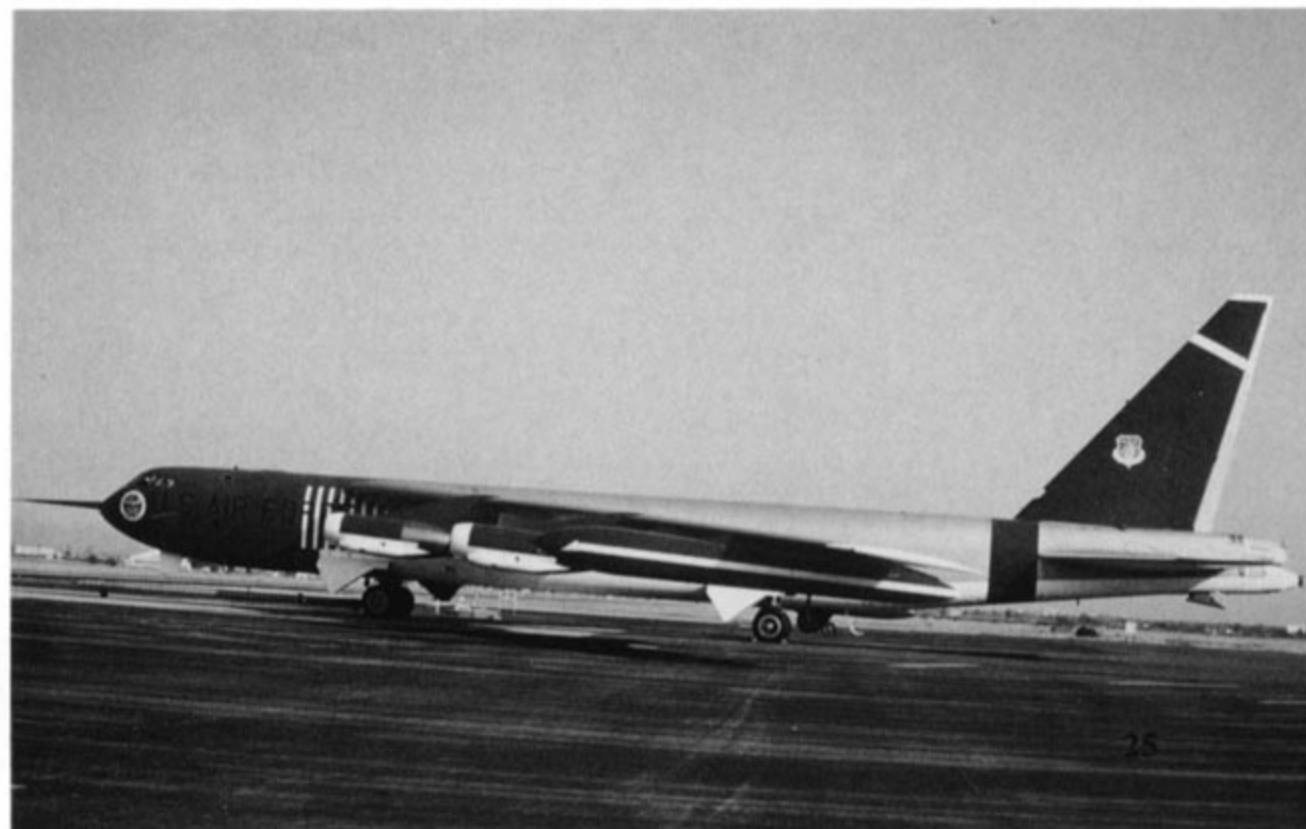
One hundred B-52Es were built at a cost of less than \$6 million each, making the E model the "cheapest" of the B-52 series. Used strictly in the nuclear deterrent mission, the B-52E was operationally phased out of service in 1970 when the 22nd BW and 96th BW ferried their remaining B-52Es to Davis-Monthan AFB, although several remained in service with the B-52 combat crew training units.

A SAC crew runs to a waiting "cocked" (armed) B-52E on the alert ramp. The B-52E had avionics that suited the new tactics developed by SAC that consisted of a low level mission profile. (USAF)



As with other B-52 variants, some of B-52Es were modified to test other equipment and systems. This NB-52E was fitted with a single GE JT-9D turbofan engine which was intended to power the Boeing 747 Jumbo Jet transport. (JEM Aviation Slides)

One of the most innovative, and certainly the most colorful of B-52s, was the Red, White and Natural Metal NB-52E used for Fly-By-Wire tests. The aircraft was fitted with small control strakes on the forward fuselage and a fully instrumented test boom in the nose. (Mick Roth)



# B-52F

The B-52F differed from the earlier variants in that it was powered by 13,750 lbst J57-P-43W engines with water injection. These engines were equipped with "hard drive" alternators to supply electricity for the aircraft. These gear driven alternators were mounted on the left side of each left engine in a pod. With the alternator protruding some twelve inches out from the engine, a new ducted fairing was constructed for the engine cowling. The first flight of a Seattle-built B-52F came on 6 May 1958, while the first Wichita B-52F flew on 14 May. Wichita built forty-five B-52Fs, with Seattle building an additional forty-four aircraft. When the last B-52F came off the assembly line at Seattle on 24 February 1959, all future B-52 production was shifted to the Wichita plant. The B-52F entered SAC service with the 7th BW at Carswell AFB in June of 1958.

It was the B-52F that conducted the first ARC LIGHT missions of the Vietnam War. In February of 1965 SAC committed two B-52F wings to the conflict, the 2nd and 320th BWs, with the 2nd BW being relieved by the 7th BW in May of 1965. The B-52Fs were standard strategic bombers with racks fitted in the standard bomb bay which held a total of twenty-seven 500, 750, or 1,000 pound bombs. All B-52Fs were capable of carrying the AGM-28 Hound Dog missile and had underwing pylons fitted as standard. This under-

wing pylon was modified for the conventional mission by adding a heavy gauge steel I-beam adapter which mounted a pair of Multiple Ejector Racks (MERs). Each MER held six 500 or 750 pound bombs. This meant that a B-52F flying the ARC LIGHT mission could carry a maximum of fifty-one conventional weapons of various types.

On 18 June 1965, twenty-seven B-52Fs left Andersen AFB, Guam to attack Viet Cong targets northwest of Saigon. This first mission was inauspicious to say the least. The VC suffered very few casualties, in fact, some say there were no VC in the area. Additionally, the strike force lost two B-52Fs in a midair collision, with loss of both crews. But the ARC LIGHT missions continued, and would do so through to the final cease-fire in 1973. The B-52Fs were pulled from combat duty in SEA beginning in April of 1966 when the BIG BELLY B-52Ds became available. After less than a year in combat, B-52F crews had dropped over 100,000 tons of bombs on VC targets in South Vietnam, Laos and Cambodia. They were instrumental in the successful conclusion of the Marine Operation HARVEST MOON and the 1st Air Cav operations in Ia Drang valley.

Following withdrawal from combat in 1966, the B-52Fs returned to the continental United States as part of SACs nuclear deterrent alert force. The B-52F was phased out on 7 December 1978 when the 2nd BW took their last aircraft to Davis-Monthan.

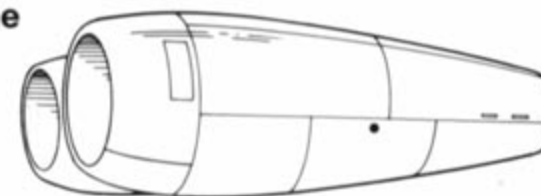
"Cocked" B-52Fs from the 320th Bomb Wing on alert during the Cuban Missile Crisis of October 1962. The bulged engine cowlings covering the hard drive alternators were the first major external change to the B-52 since the RB-52B tail turret. (Joe Bruch)



## Engine Development

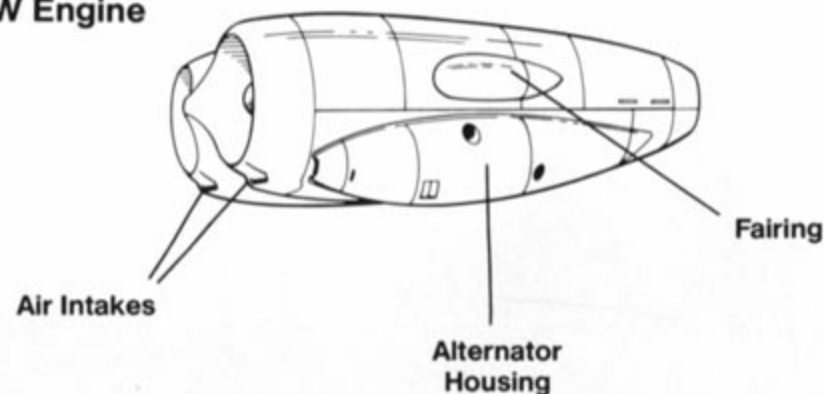
### B-52A-E

#### J57-P-29WA Engine



### B-52F

#### J57-P-43W Engine





This 93rd BW B-52F is configured with the steel I-beam Heavy Stores Adapter Beam (HSAB) with a pair of Multiple Ejector Racks (MERs) under each wing for carrying conventional munitions during Project SHORT TRIP tests at Eglin AFB in the Summer of 1964. (Joe Bruch)

A B-52F of the 320th BW pulls into its parking spot at Andersen AFB, Guam following an ARC LIGHT mission in late 1965. The 320th BW began ARC LIGHT operations from Andersen on 18 June 1965. (Joe Bruch)

A pair of B-52Fs of the 454th Bomb Wing unloading their bomb loads on Viet Cong targets in South Vietnam during 1965. Each B-52F could carry a maximum of fifty-one bombs. B-52F operations were conducted under the code name ARC LIGHT. (Joe Bruch)





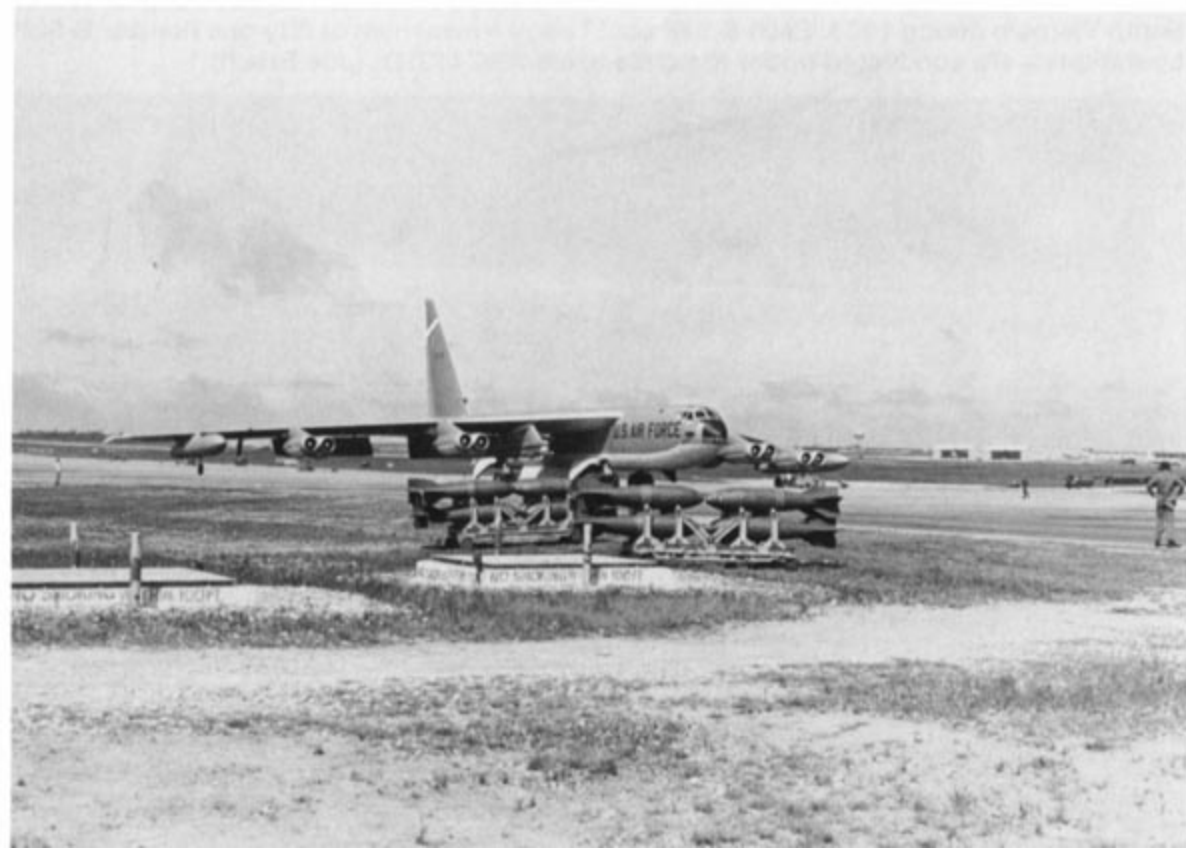
A 320th Bomb Wing B-52F on the ramp at Andersen AFB in the Summer of 1965. At this early date in ARC LIGHT operations, the BUFFs still retained their Gloss White nuclear anti-flash paint and had little in the way of ECM equipment to counter Soviet-built AAA or SAMs. (Joe Bruch)

A B-52F of the 7th Bomb Wing carries a full load of M117 750 pound iron bombs enroute to targets in South Vietnam during the late Summer of 1965. The first ARC LIGHT mission was a disaster when two of the B-52Fs collided in midair resulting in the loss of both crews. (Joe Bruch)



Streaming its drag chute, a 7th Bomb Wing B-52F rolls to a halt at Andersen AFB during early 1966. The Gloss Black undersurface camouflage began to appear on BUFFs in late 1965. The wingtips and outrigger landing gear are not touching the runway, an indication that the fuel tanks were at Bingo fuel (nearly empty). (Joe Bruch)

A B-52F of the 320th BW taxis into the arming pits at Andersen AFB to be rearmed in 1965. The M117 750 pound iron bombs were lifted individually onto the MERs and internal racks by an MJ-1 lift tractor, rather than by loading full "clips" of bombs as with the BIG BELLY B-52Ds. (Joe Bruch)

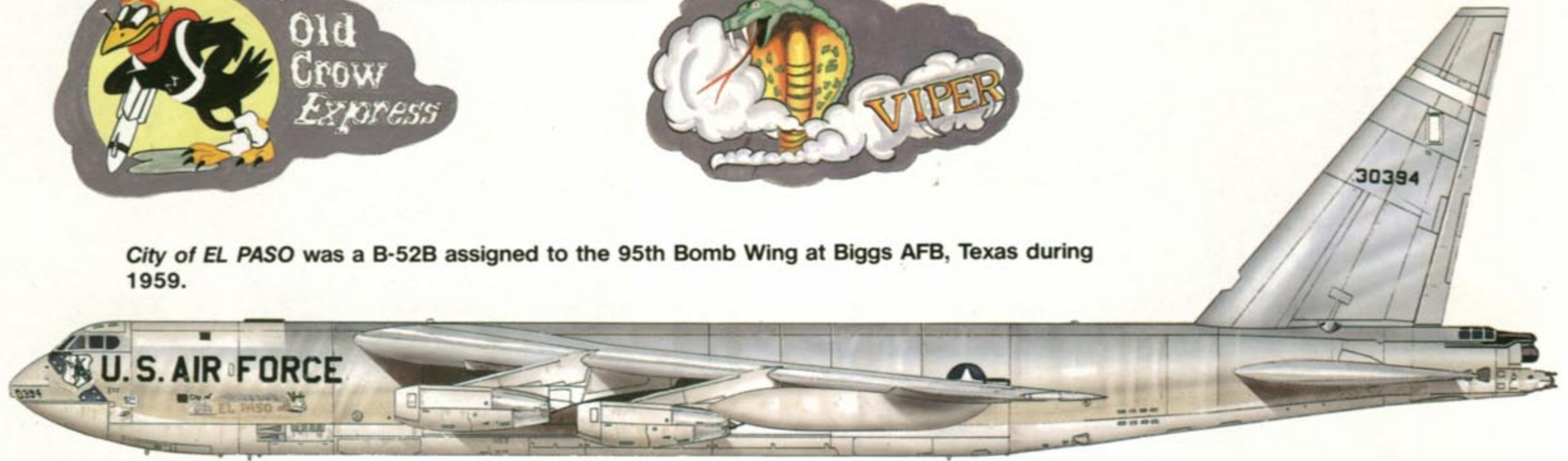




Detail of cover aircraft noseart.



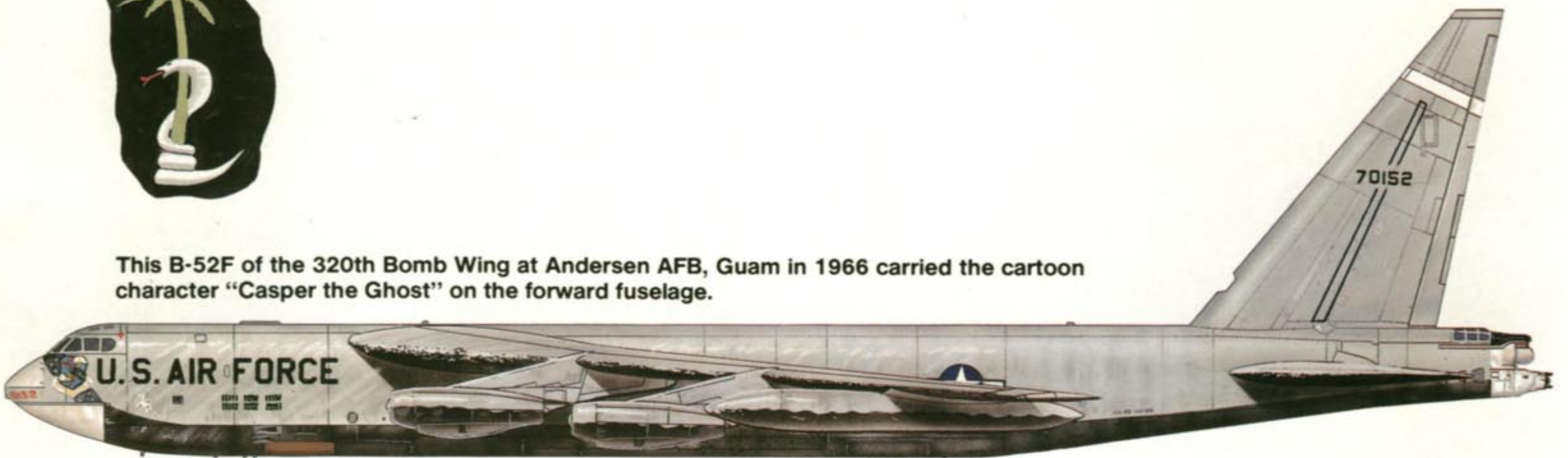
City of EL PASO was a B-52B assigned to the 95th Bomb Wing at Biggs AFB, Texas during 1959.



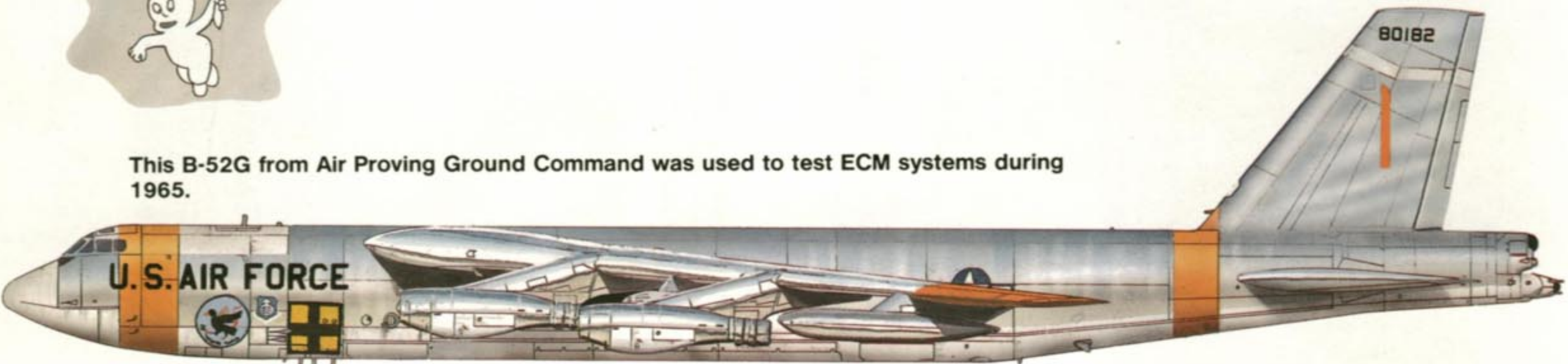
AB-52D of the 307th SW at U-Tapao, Thailand in February of 1970 in standard Southeast Asia camouflage with Black undersurfaces.



This B-52F of the 320th Bomb Wing at Andersen AFB, Guam in 1966 carried the cartoon character "Casper the Ghost" on the forward fuselage.



This B-52G from Air Proving Ground Command was used to test ECM systems during 1965.

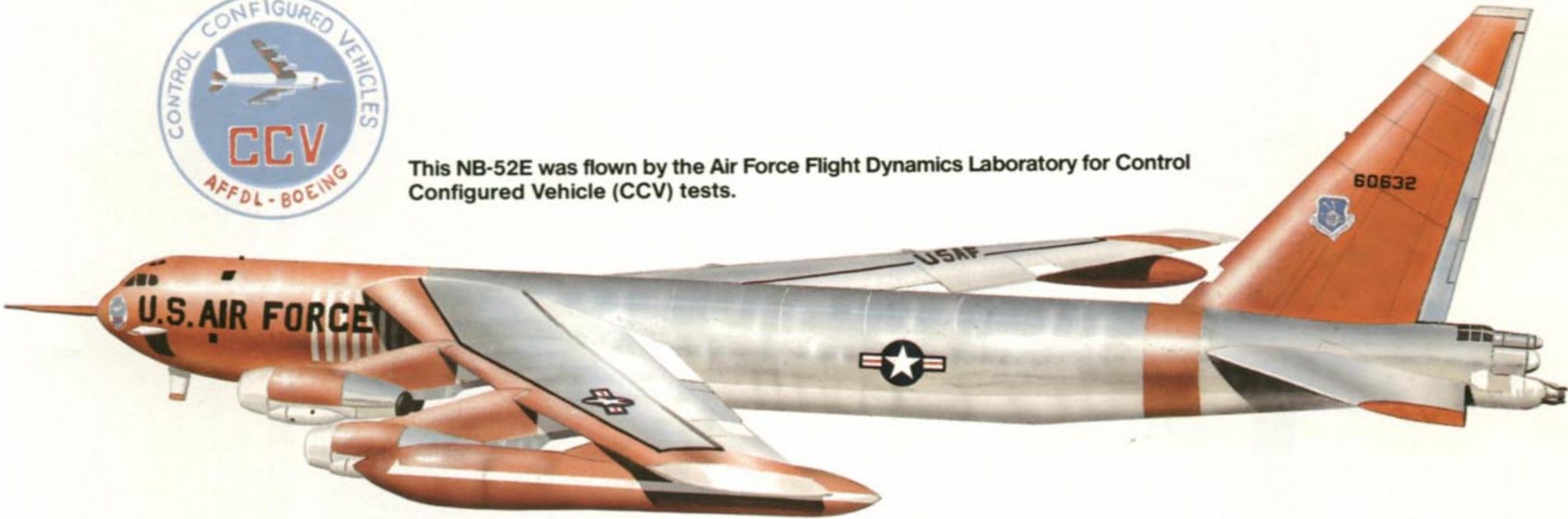




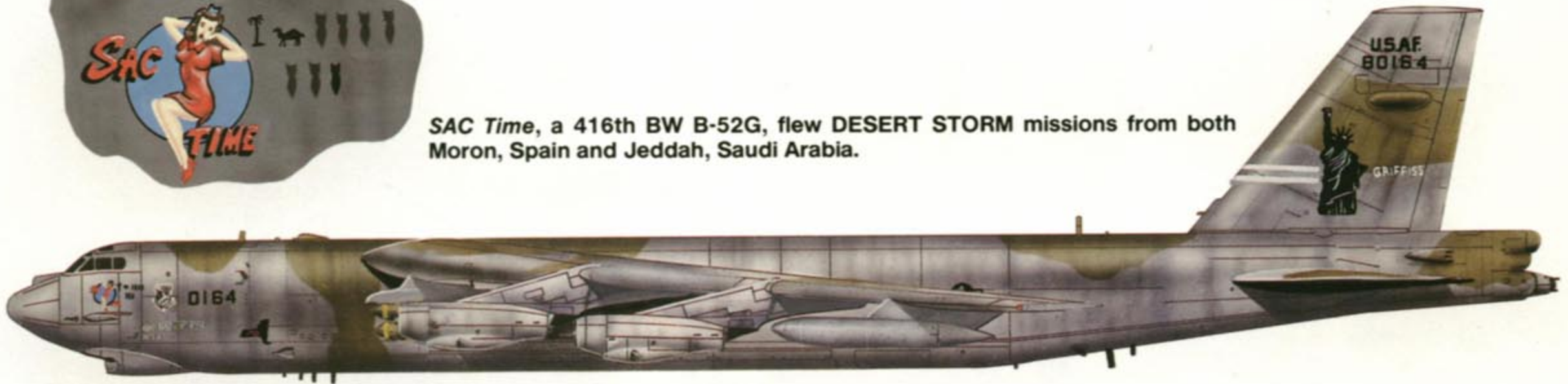
*Miss Fit II*, a 2nd BW B-52G, fired Air Launched Cruise Missiles against Iraqi targets on 17 January 1991 as part of the opening round of DESERT STORM.



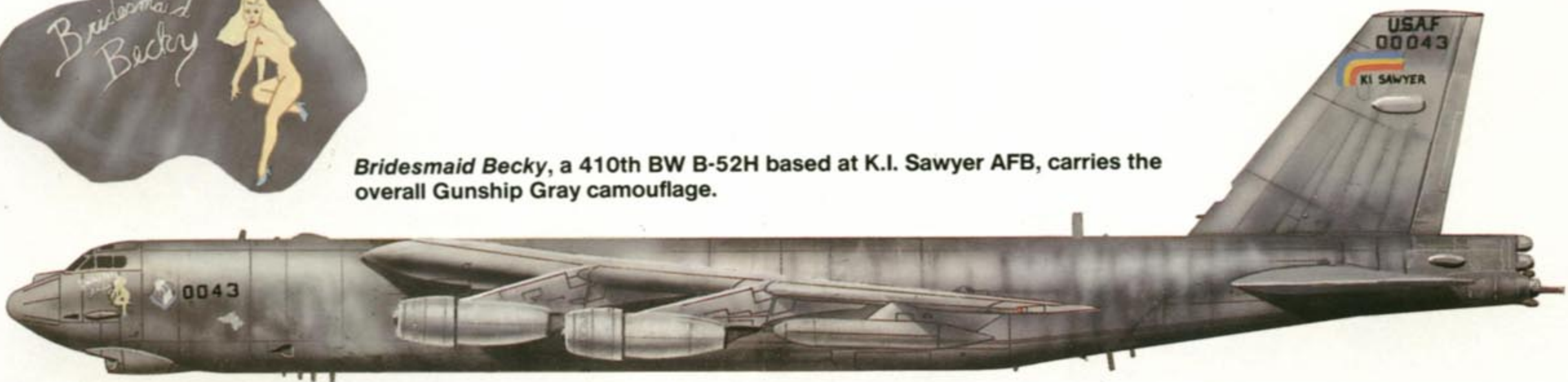
This NB-52E was flown by the Air Force Flight Dynamics Laboratory for Control Configured Vehicle (CCV) tests.



*SAC Time*, a 416th BW B-52G, flew DESERT STORM missions from both Moron, Spain and Jeddah, Saudi Arabia.



*Bridesmaid Becky*, a 410th BW B-52H based at K.I. Sawyer AFB, carries the overall Gunship Gray camouflage.



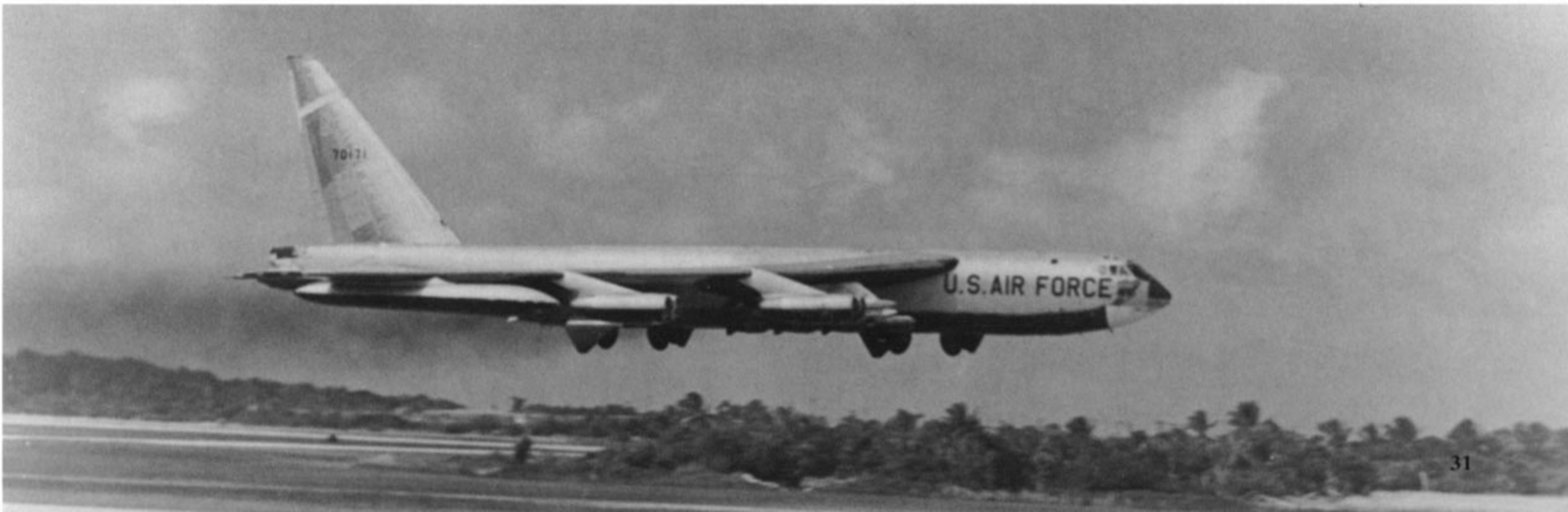


This 320th Bomb Wing B-52F returned to Andersen with a “hung” bomb on the left rear MER. B-52Fs dropped over 100,000 tons of bombs on ARC LIGHT operations between June 1965 and April 1966. The distinctive engine bulges common to the B-52F are visible. (Joe Bruch)



The *Mekong Express*, a B-52F of the 320th BW, heads inland towards the target area it was named after — the Mekong Delta. The aircraft carries twenty-one mission markings on the fuselage side. The “Express” flew at least fifty-five more missions before rotating home in April of 1966. (Robert F. Dorr)

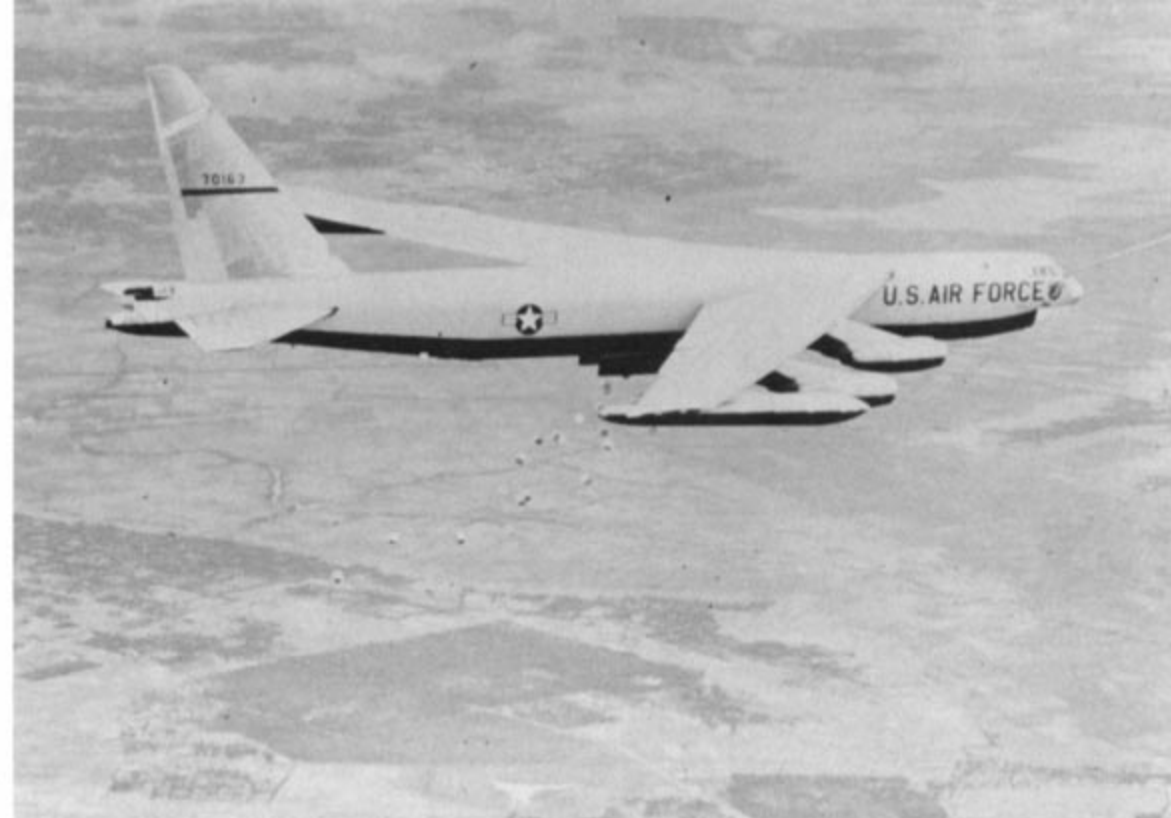
Streaming black smoke from the water injection, a 320th BW B-52F leaves Andersen AFB with a full load of fifty-one M117 750 pound bombs. It was the B-52 strikes that broke the back of the Viet Cong in the Ia Drang Valley during 1966. (Joe Bruch)







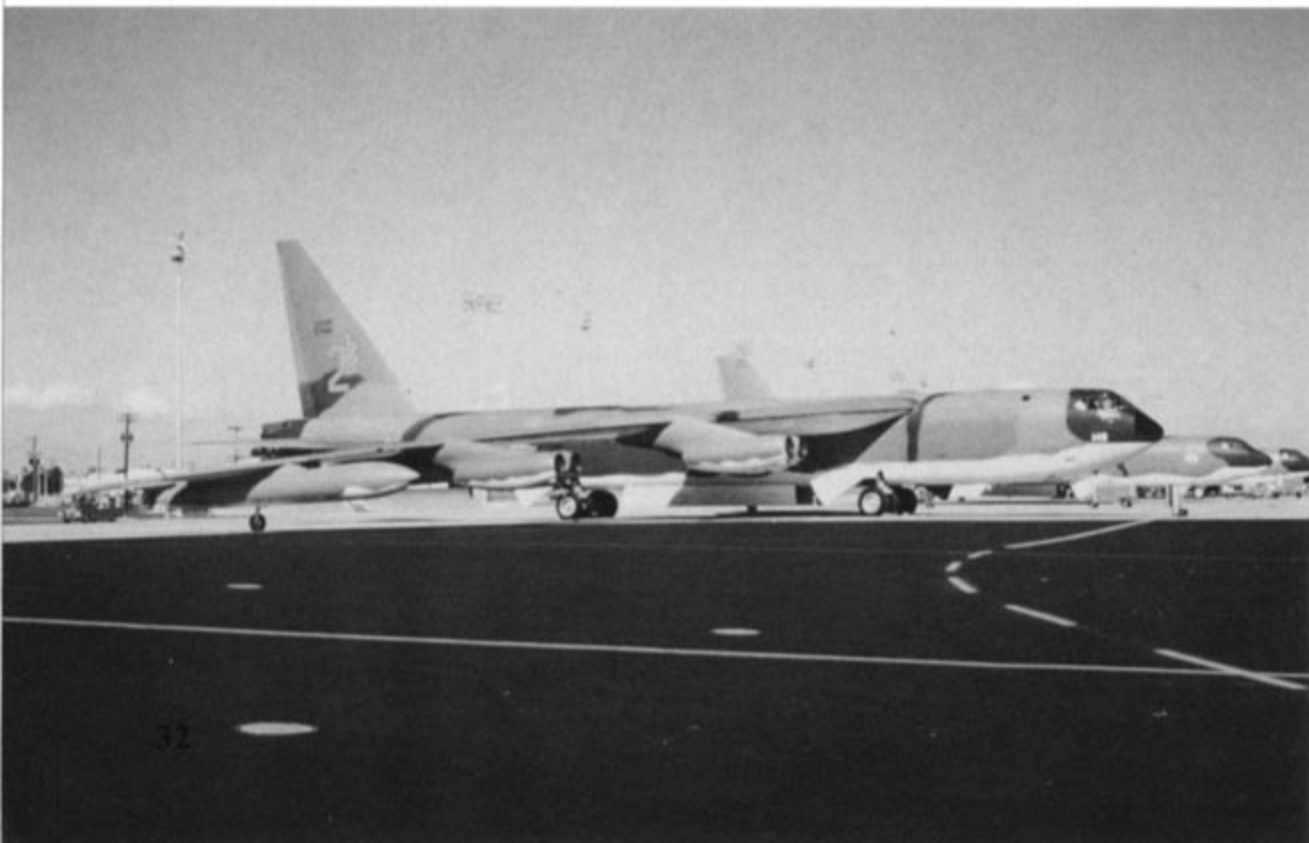
Fully armed and waiting for a first light takeoff, "Casper The Ghost" stands ready at Andersen AFB with a full load of M117 750 pound bombs. "Casper" would later drop the 50,000th bomb on the VC. The Gloss Black undersurface camouflage was very heavily weathered. (Joe Bruch)



A B-52F (57-0163) of the 7th Bomb Wing drops Cluster Bomb Units (CBUs) during an ARC LIGHT mission over Vietnam in 1965. The 7th Bomb Wing was home based at Carswell AFB, Texas and was deployed to Andersen AB Guam for missions over Southeast Asia. (Joe Bruch)

Following their re-deployment back to CONUS (Continental U.S.) units and bases, the B-52Fs received the full strategic camouflage scheme. This B-52F of the 329th BS is unusual in that Tan (FS 30219) has replaced the standard Light Green (FS 34201). (Tom Brewer)

A B-52F of the 320th Bomb Wing returns to Mather AFB during 1967 with thirty mission markings displayed on the fuselage in Black. This ARC LIGHT veteran returned to the strategic mission after its 1965-66 combat deployment to Vietnam. (Robert Esposito)



# B-52G

The B-52G was the first of the "short-tail" variants, but the shorter vertical tail assembly was just one of a multitude of major internal and external changes that came about with the B-52G. These changes were the result of a major weight saving program initiated by Boeing and the Air Force. The most noticeable change was the reduction of the height of the vertical tail by almost eight feet, from 48 feet 3 inches to 40 feet 8 inches. But the wing was also completely redesigned, deleting the conventional ailerons. Internally, the wing fuel "bladders" were replaced by fuel "cells" that converted virtually every nook and cranny in the huge wing into a fuel tank. This new "wet wing" increased the internal fuel capacity from 41,500 gallons to 48,000 gallons. With the increase in internal tankage, the external wing tanks were reduced in size from 3,000 gallons to 700 gallons and permanently attached to the outer wing.

The final major change externally was the deletion of the manned rear turret. The four gun turret remained but the gunner was moved forward to join the rest of the crew, sitting beside the EWO on the upper deck behind the pilot. The gunner now operated his weapons by remote control through an AN/ASG-15 Fire Control System, using either radar tracking or closed circuit television. Actually, the entire crew cabin was redesigned not only to make room for the gunner and his equipment, but to give the crew more space. The floor was lowered creating more head room. Both the EWO and the Gunner sat facing aft and ejected upward and all the ejection seats were redesigned for greater comfort. The air conditioning system was revamped and given increased capacity and all redundant crew systems were eliminated. The dual radomes on the nose were replaced with a one-piece radome to help reduce both costs and to ease maintenance of the forward-looking radar and ECM systems.

The redesigned "wet wing" saved almost 6,000 pounds and the shorter tail section cut another 12,000 pounds off the empty weight. But additional ECM equipment, additional ejection system for the gunner, the AN/ASG-15 Fire Control System, plus all the additional wiring and plumbing needed for the Hound Dog missile reduced the total weight savings to 15,400 pounds. But the gross weight of the combat loaded B-52G actually increased almost 40,000 pounds to a maximum gross takeoff weight of 488,000 pounds. With the increase in gross weight, the range should have dropped, but the unrefueled range actually increased from 6,600 nautical miles to over 7,500 nautical miles.

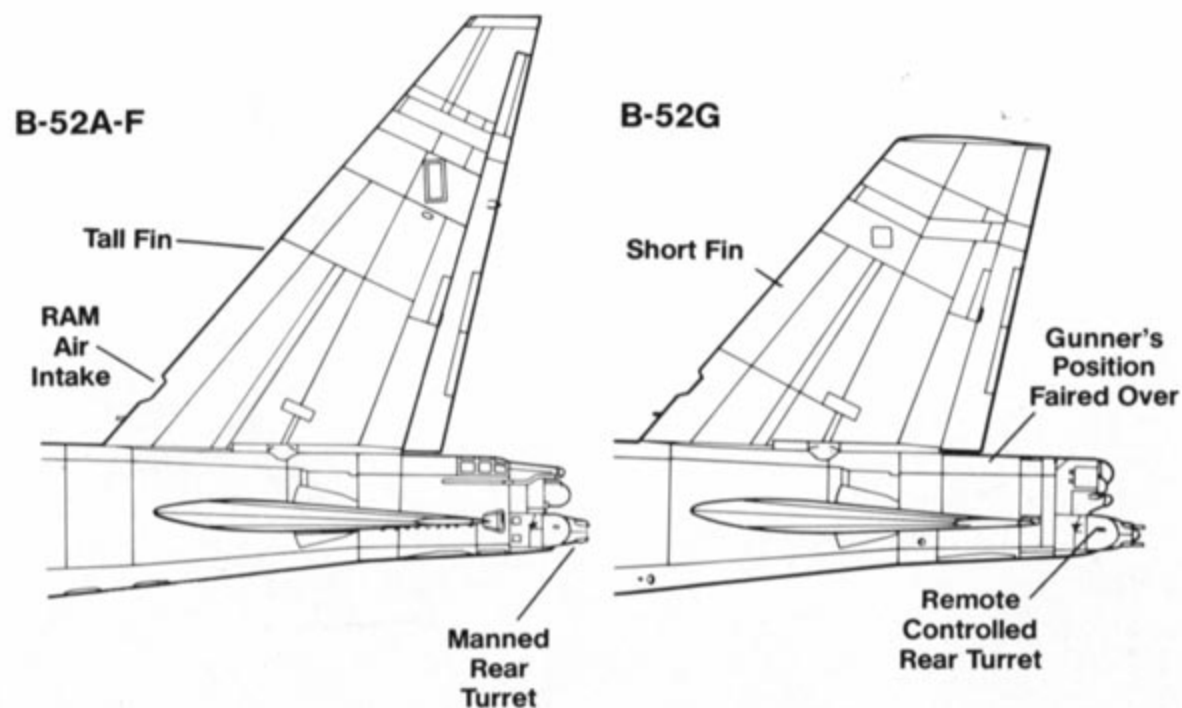
The B-52G was the first to be built solely by Boeing's Wichita plant. The first B-52G rolled off the assembly line on 23 July 1958, with the first flight taking place on 27 October. Delivery of the first B-52G to the Air Force Air Research and Development Command at Edwards AFB came on 1 November 1958. The first operational SAC aircraft (57-6468) was accepted by the commander of the 5th BW at Travis AFB on 13 February 1959. Record breaking flights by the "lightweight" B-52G began almost immediately. On 15 December 1958, a Boeing flight crew made an unrefueled flight of over 9,000 miles. While on 13 December 1960, a 5th BW B-52G completed a 10,000 mile flight, without inflight refueling. The last of 193 B-52Gs came off the Wichita assembly line on 23 September 1960.

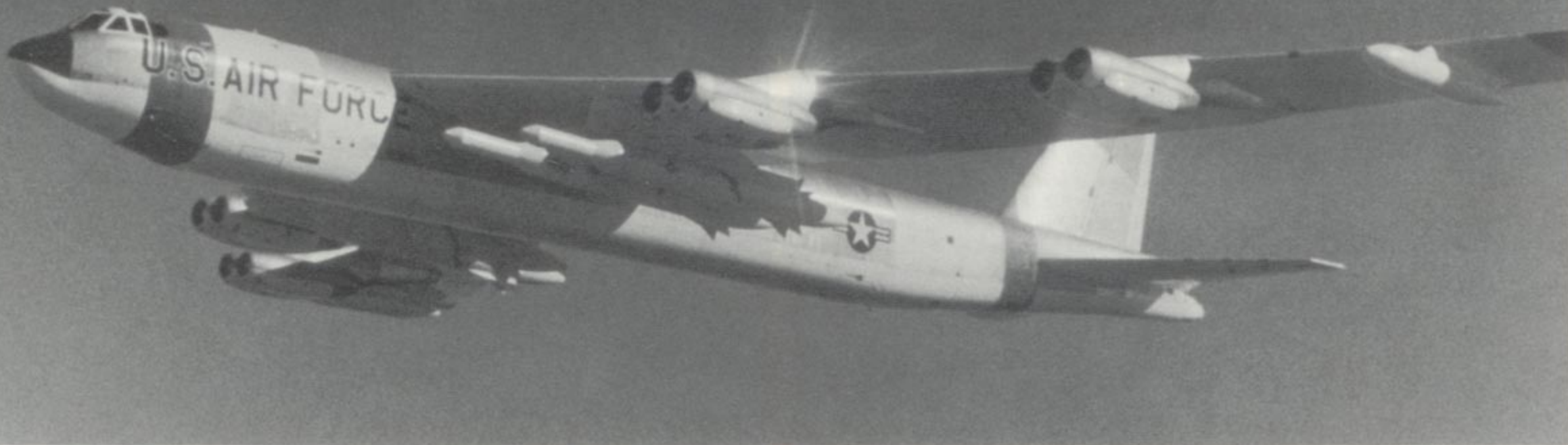
The B-52G was the first variant designed to carry and launch both the GAM-77 Hound Dog, first of the Air Launched Cruise Missiles (ALCMs), and the GAM-87A Skybolt (ALBM) Air Launched Ballistic Missile. The Hound Dog was used as a stand-off weapon designed to attack targets such as radar complexes or SAM batteries, although it could be used against any strategic target. The Hound Dog was 42 feet 6 inches long and weighed over 10,000 pounds. It was powered by a 7,500 lbst Pratt & Whitney J52-P-3 engine giving it a top speed in excess of Mach 2. With a state of the art inertial guidance



The first B-52G in flight over Wichita during November of 1958. The B-52G introduced the shorter vertical fin, remote-controlled tail turret and was built solely at the Boeing plant in Wichita. (Marty Isham)

## Tail Development





**A B-52G carrying four Douglas GAM-87A Skybolt Air Launched Ballistic Missiles. The Skybolt program was cancelled in 1962 due to cost overruns and was eventually replaced by the Boeing AGM-69 Short Range Attack Missile (SRAM). (Marty Isham)**

**SAC B-52G combat crew racing to their "cocked" alert B-52G. One of the smaller changes on the B-52G was that the crew entry door opened to the rear instead of forward. The sign on the Hound Dog missile engine intake indicated the missile was armed. (USAF)**



system, the Hound Dog could attack targets over 600 miles from the B-52 launch aircraft. Conveniently, the Hound Dog missiles were wired and plumbed into the B-52's circuits and fuel systems. As a result, the B-52 pilot could use the Hound Dog engines for takeoff and refuel the missile in mid-air from the B-52 main fuel tanks.

The first Hound Dog was delivered to the 4135th Strategic Wing at Eglin AFB on 23 December 1959 for operational testing. On 29 February 1960, a 4135th B-52G successfully launched a (now designated) AGM-28 for the first time. The first successful Hound Dog mission was flown on 12 April when a 4135th B-52G left Eglin AFB, Florida, made a round trip to the North Pole and back, then launched the missiles over the Cape Canaveral Missile Test Center. The AGM-28 carried a Mk 28 nuclear warhead with a one megaton yield. All previous B-52 variants were retrofitted with Hound Dog launch capability. The Hound Dog was retired in 1978, being replaced by the Boeing-designed AGM-69A SRAM.

The B-52G was also intended to be a launch vehicle for the Douglas GAM-87A Skybolt Air Launched Ballistic Missile. The Skybolt was a two stage, solid fuel ALBM with a range of 1,150 miles and carried a nuclear warhead with a one megaton yield. The Skybolt was a major Anglo-American project which would have replaced the Hound Dog on B-52 aircraft and the Blue Streak missile on RAF Vulcan bombers. But a much greater than anticipated developmental and production cost of the system forced President Kennedy to cancel the Skybolt on 7 December 1962.

Both the Hound Dog and Skybolt were eventually replaced by the Boeing-designed AGM-69A Short Range Attack Missile or SRAM. The SRAM was a single stage, restartable solid fuel ballistic missile that had a range of about 100 miles. Six SRAMs can be carried externally on specially designed underwing pylons mounting standard MAU-12 ejector racks. On the B-52H, SRAMs are carried in a rotary launcher that mounts into the bomb bay. The rotary launcher holds eight SRAMs, for a total of twenty SRAMs, plus the "clip" of four nuclear gravity bombs normally carried.

Another missile developed for use on the B-52G was the McDonnell GAM-77 Quail decoy missile. The Quail is a small jet-powered missile that was carried in the B-52 bomb bay. The Quail had electronic equipment that gave the missile a "radar signature" similar to that of a B-52. A B-52 could launch its Quail in enemy territory and enemy

radars and SAMs wouldn't be able to tell it from the true "bomber" — at least that was the theory. The Quail was powered by a single J85-GE-7 engine that gave the little missile similar performance to that of a B-52. Each B-52 bomb bay could hold four of the re-designated ADM-20 Quails. The Quail missiles were retired from service with the Hound Dogs in 1978.

Finally, the B-52G was capable of launching the new generation AGM-86 ALCM, a state of the art cruise missile designed and built by Boeing. The AGM-86 was actually an outgrowth of a program to develop a follow-on missile to the Quail decoy, only this decoy would pack a hell of a wallop. Competition for the ALCM contract finally came down to two manufacturers: Boeing with the AGM-86 and General Dynamics with the AGM-109 Tomahawk. Both missiles won — the Navy got the Tomahawk and the Air Force got the AGM-86. On 2 May 1980, Boeing was issued a contract to build 225 ALCMs. The first SAC unit to go operational with ALCMs was the B-52G equipped 416th BW at Griffiss AFB in December of 1982.

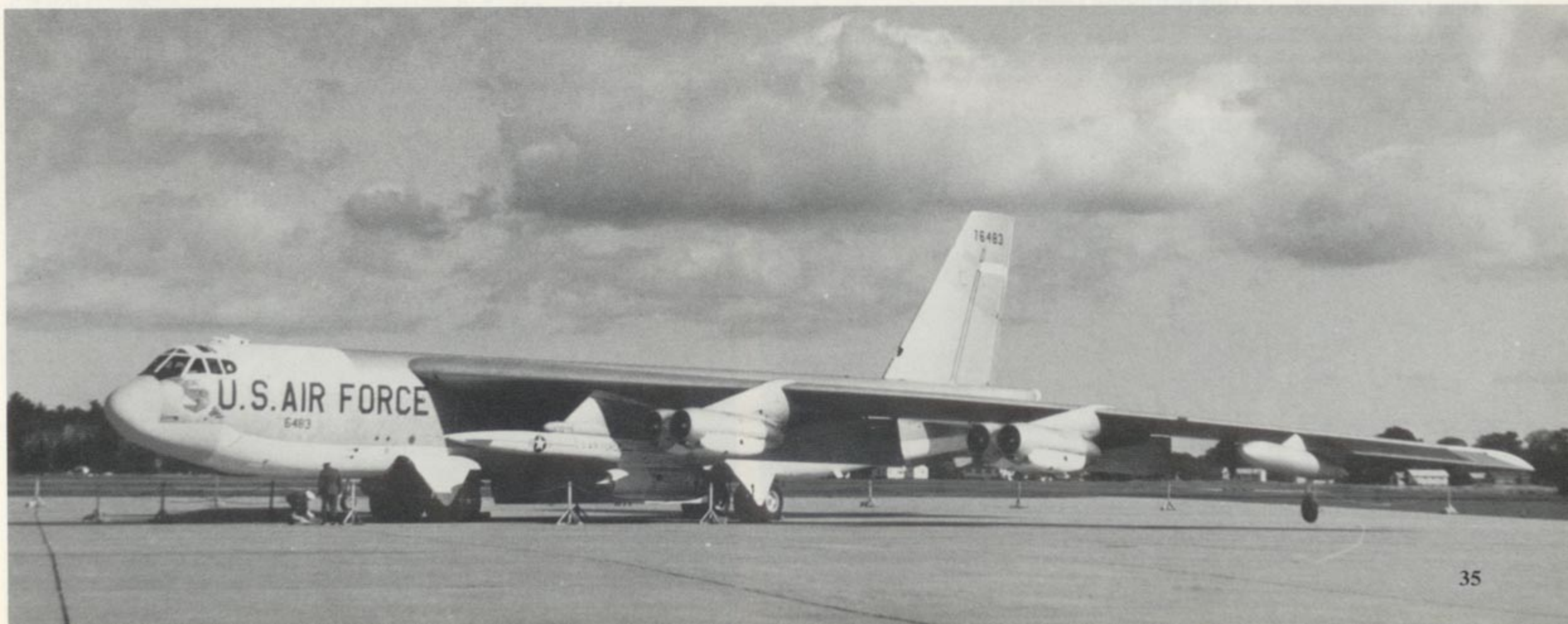
The AGM-86B ALCM is 20 feet 9 inches long and has a 12 foot wingspan. It weighs 3,200 pounds and is powered by a 600 lbst Williams F107-WR-100 turbofan engine. The top speed is over 500 mph and it has a range of 1,500 miles. The AGM-86B carries a W80-1 nuclear warhead with a 200 kiloton yield. The AGM-86 ALCM is extremely accurate. The inertial navigation computer is reprogramed inflight every minute with the latest information from the B-52G/H navigational system. The missile computer has an internal

radar altimeter and uses a memory that contains complete map references in the program known as TERCOM. The TERCOM has all the hills, valleys, streets, buildings and rivers in its memory. As evidenced on CNN last January, the ALCM can literally fly down a designated street until it locates the correct address. Iraqi President Saddam Hussein has a personal knowledge of the accuracy of these cruise missiles.

The B-52G has gone through a series of evolutions both offensively and defensively over its career. First was the tactics change from high altitude nuclear attack to low altitude nuclear attack. With the Hound Dog and Quail paving the way, the B-52Gs dropped their penetration altitude from 35,000 feet to 500 feet or less! The Soviets countered this with the development of the SA-3 SAM missile, which could successfully attack an aircraft flying at altitudes down to 500 feet. SAC countered the new SAM threat with new ECM systems and by dropping the penetration altitude down to 200 feet (or less) through use of an advanced capability radar with terrain avoidance.

Low level flights are the most dangerous for any type of aircraft. The crew has little or no time to react to any type of threat. But a low level attack of 200 feet, at night or with the nuclear "curtains" closed, could be pure suicide. In the early 1970s Boeing developed the AN/ASQ-151 EVS system (Electro-Optical Viewing System). The EVS used both a Westinghouse AN/AVQ-22 low level light television (LLLTV) camera and a Hughes AN/AAQ-6 Forward Looking Infrared (FLIR) unit in a dual turret assembly under the radome. The EVS system gave the pilots the "night eyes" required to successfully operate at the

**The standard armament of the B-52G during the early 1960s was a pair of North American AGM-28 Hound Dog cruise missiles with nuclear warheads, plus at least two hydrogen bombs of varying yields (up to nine megatons) in the bomb bay. (Candid Aero-Files)**



extreme low penetration altitudes called for with the new SAC mission profile.

Defensively, the B-52 was constantly upgraded electronically to counter the latest in Soviet anti-aircraft threats. Early B-52s had multiple jammers, chaff dispensers and radar warning receivers. By the time that the LINEBACKER operations began against North Vietnam in 1972, the B-52s began to look like porcupines with multiple ECM antenna "farms" growing under the fuselage. Chaff and flare pods were mounted between the engine pods and additional RHAW antennas and flare dispensers were installed.

The Phase VI electronic warfare modification brought a great many external changes to the B-52G and H. First was the 40 inch extension of the rear fuselage between the trailing edge of the rudder/stabilizer line and the rear turret assembly. This extension housed an AN/ALQ-117 ECM system. An additional pair of ALQ-117 antenna fairings were added to the nose of the aircraft above the EVS turret assembly. The vertical fin had an AN/ALQ-153 tail warning radar antenna bump added to each side. Additional ECM antenna arrays are mounted in the wingtips, with jammers in the nose and rear fuselage.

The B-52G saw combat during the Vietnam War as part of Operation BULLET SHOT when SAC committed 110 B-52Gs during the LINEBACKER operations. The B-52Gs could carry only twenty-seven bombs internally. But the G models operated alongside the veteran B-52Ds in the Summer and Fall of 1972, culminating in the successful LINEBACKER II attacks against North Vietnam. With the signing of the cease-fire, the B-52G force began to stand down. On 15 July 1973, the first 51st BMS B-52Gs returned to their home base at Seymour Johnson AFB to begin standing nuclear alert once again. They remained in this mission posture until January of 1991.

Operation DESERT STORM "officially" began in the early hours of 17 January 1991. But SAC B-52Gs had actually started on their missions on 16 January 1991. At 0635 hours on 16 January, seven B-52Gs from the 596th BMS/2nd Bomb Wing left Barksdale AFB, Louisiana for Saudi Arabia. What made the mission unusual was that these B-

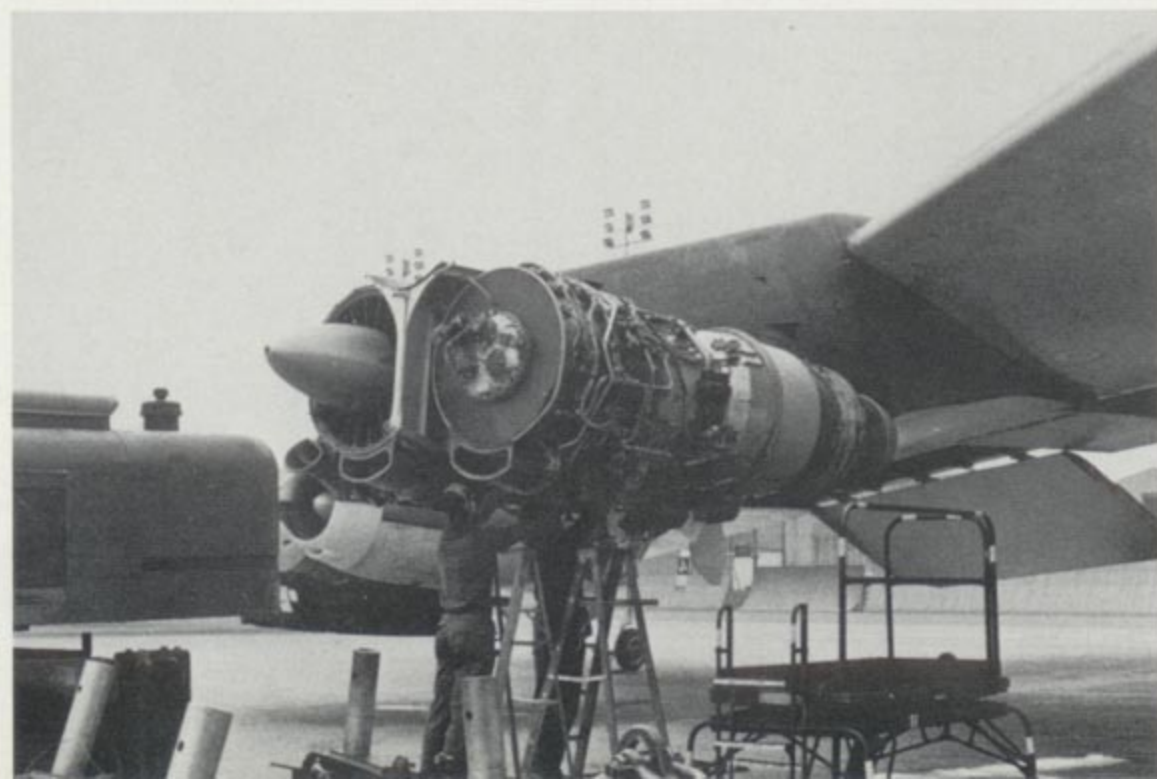
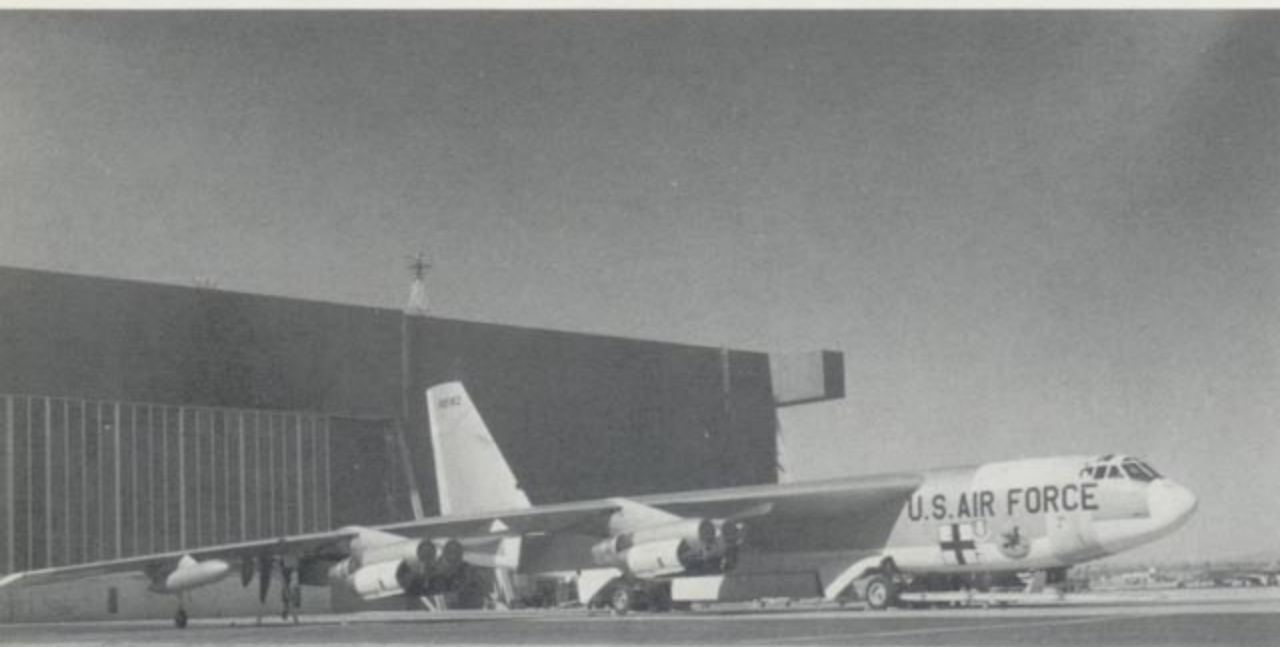
**An Air Force Systems Command B-52G was tested in February 1965 with both the ALE-25 forward-firing rocket chaff pod positioned between the engines and an exhaust deflector system on all eight engine exhausts which was designed to reduce their infrared signature. (Marty Isham)**

52Gs were carrying live Boeing AGM-86C Air Launched Cruise Missiles (ALCMs). The AGM-86C is the same missile used for nuclear standoff attacks except that it has a 1,000 pound high explosive warhead and the TERCOM system was tied in with the B-52 Global Positioning Satellite System. Refueling once just off the U.S. coast and again near Gibraltar, the B-52Gs were escorted the rest of the way by F-15C Eagles.

Arriving over Saudi Arabia around 1 am local time on 17 January, the B-52Gs orbited some 500 miles from Baghdad, launching their missiles at 0130 hours. The B-52Gs had left Barksdale with thirty-nine ALCMs on board and each one had a different target entered into its memory. Thirty-five ALCMs were launched, while four developed guidance problems and were brought home to Barksdale. The targets were command and control complexes, radar sites and power generating facilities. The ALCMs arrived at approximately the same time as the Navy Tomahawk SLCMs and the F-117 Stealth fighter. The results were viewed by millions of people throughout the world. It was like watching a firepower demonstration. The CNN reporters talked about watching the cruise missiles roaming up and down the streets of Baghdad looking for targets. After the B-52Gs had launched their missiles they began the long flight home again, hitting the tankers twice more enroute back to Barksdale. It had been the longest combat mission in history, with each aircraft and crew logging 34+ hours in the air. But that was just the beginning.

On Day 2 of DESERT STORM, ten B-52Gs from the 379th BW left Wurtsmith AFB, Michigan. They were loaded with standard M117 750 pound bombs and brand new CBU-87 cluster bombs that had been shipped in from Rome Air Development Center the day before the mission. Refueling in flight from KC-135s off the coast of Rhode Island and by KC-10s from Moron, Spain over the Mediterranean, the B-52Gs struck Republican Guard positions in and near Kuwait. These missions were ONLY seventeen and a half hours in length as they landed at Jeddah, Saudi Arabia, where they remained for the rest of the war. The B-52Gs flying combat in DESERT STORM were assigned to four provisional bomb wings: the 1708th BW (Provisional) at Jeddah, the 4300th BW (P) at Diego

**The B-52G used the same 13,750 lbst water injected Pratt & Whitney J57-P-43W engines as the B-52F except that the engine cowls were slightly different in that the upper cowling bulges were deleted.**



Garcia, the 801st BW (P) at Moron, Spain and the 806th BW (P) at RAF Fairford in Great Britain. SAC committed seventy-four B-52Gs to DESERT STORM, with the aircraft and crews being drawn from units throughout SAC.

A typical B-52 DESERT STORM mission was not unlike an ARC LIGHT B-52D mission of the Vietnam War. The B-52Gs usually flew in three or four aircraft "cells." Each B-52 cell was typically supported by a pair of F-4G Wild Weasel Phantoms for defense suppression and two to four F-15C Eagles flying MiGCAP. At times the cells would number up to six aircraft. Each cell would have a Loring or Castle AFB aircraft as Lead since they had the "777" mod with the NAVSTAR Global Positioning System for pinpoint navigation. A cell was launched from Jeddah every three hours, keeping unrelenting pressure on the Republican Guard near Kuwait. During the first days of the war, the cells launched from Diego Garcia and Moron were attacking using a standard nuclear penetration profile, coming in at 500 feet or less, usually much less. But the small caliber anti-aircraft fire was so intense, and the SAM suppression so complete, that SAC altered the mission profile, sending in the B-52 cells at 35,000 feet. As in Vietnam, the ground would simply start exploding around the Republican Guard before they even knew there was a B-52 in the area.

Although only one B-52G was lost during the war, and that was a non-combat accident, several did sustain heavy damage despite the extensive defense suppression efforts by Coalition aircraft. CAPT Marc Batway's B-52G had a near miss by an SA-3 missile that knocked out both engines in the Number One engine pod, plus taking out the left outrigger gear and several control systems and ECM antennas. Batway also took a 100mm AAA near miss that peppered the fuselage with shrapnel. Both times, the B-52 crew brought the big bird home to Jeddah to fly again. But certainly the most unusual mission was that of CAPT Linwood Mason. Mason and his crew were leading a cell attacking targets in the Baghdad area when they were attacked by a missile — a missile none of their ECM or warning systems saw coming. Later it was learned that a SAM suppression aircraft had launched an AGM-88 HARM anti-radiation missile on a SAM site that was tracking the B-52 cell. The HARM lost contact with the target radar but soon re-acquired a new radar target, the gun-laying radar in the B-52G tail turret. The HARM tore through the right stabilizer without exploding, but the impact cleaned off the last seven feet of the fuselage, including the entire tail turret and Phase VI ECM gear. Mason limped the B-52G back to Jeddah where it was patched together for a final flight, straight to the Andersen AFB boneyard.

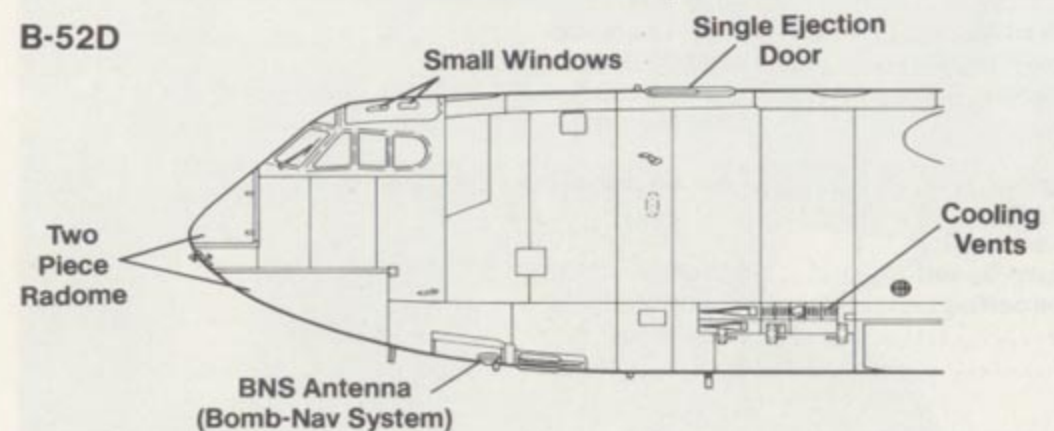
The 74 B-52Gs assigned to DESERT STORM flew a total of 1,617 sorties, with the 1708th BW (P) at Jeddah flying 846 of these. The B-52 force dropped a total of 72,012 weapons, with the Jeddah wing dropping 36,590 weapons (mostly Mk 82 and M117 GP bombs or CBU's). That is a total of 11,742,000 pounds of explosives! The B-52Gs dropped 31% of the entire U.S. total.



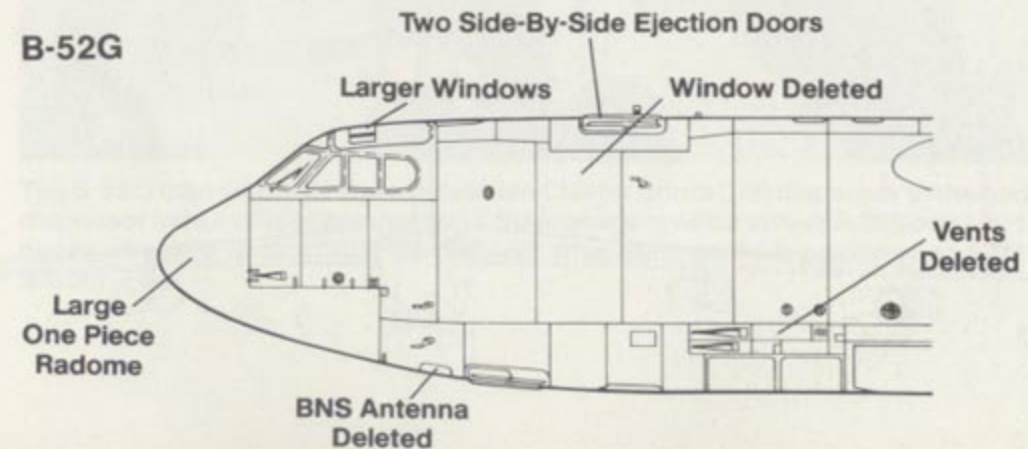
B-52Gs line the taxiway at Andersen AFB, Guam waiting to depart for targets in North Vietnam during the LINEBACKER campaign. SAC committed 110 B-52Gs to the LINEBACKER campaign even though the B-52Gs could only carry twenty-seven bombs internally since they did not have underwing pylons. (Joe Bruch)

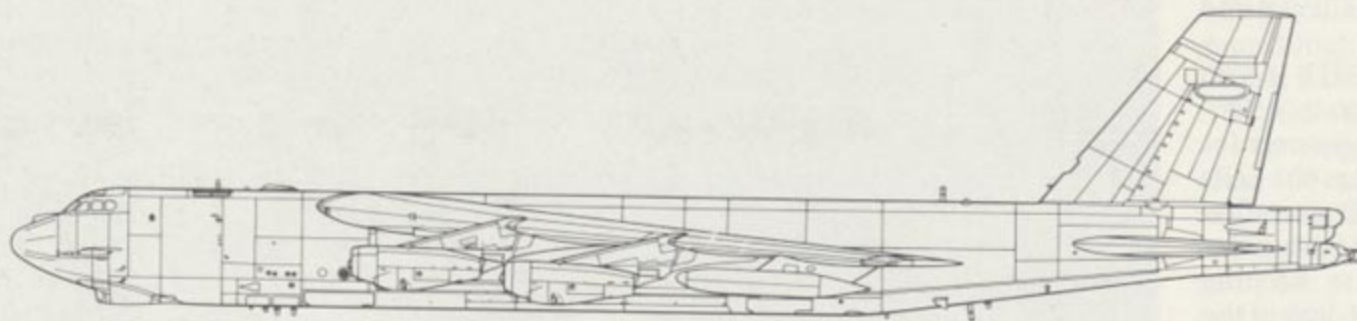
### Nose Development

B-52D



B-52G





## Specifications

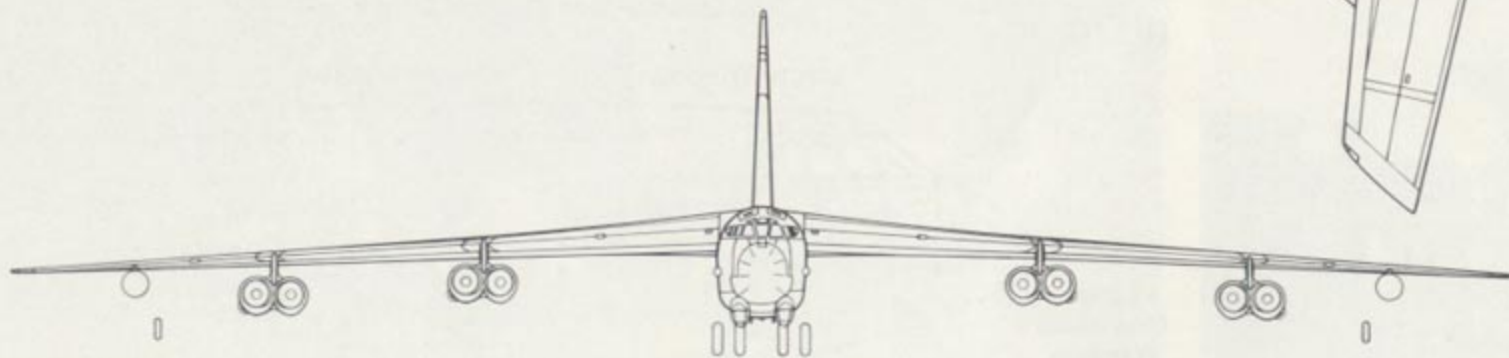
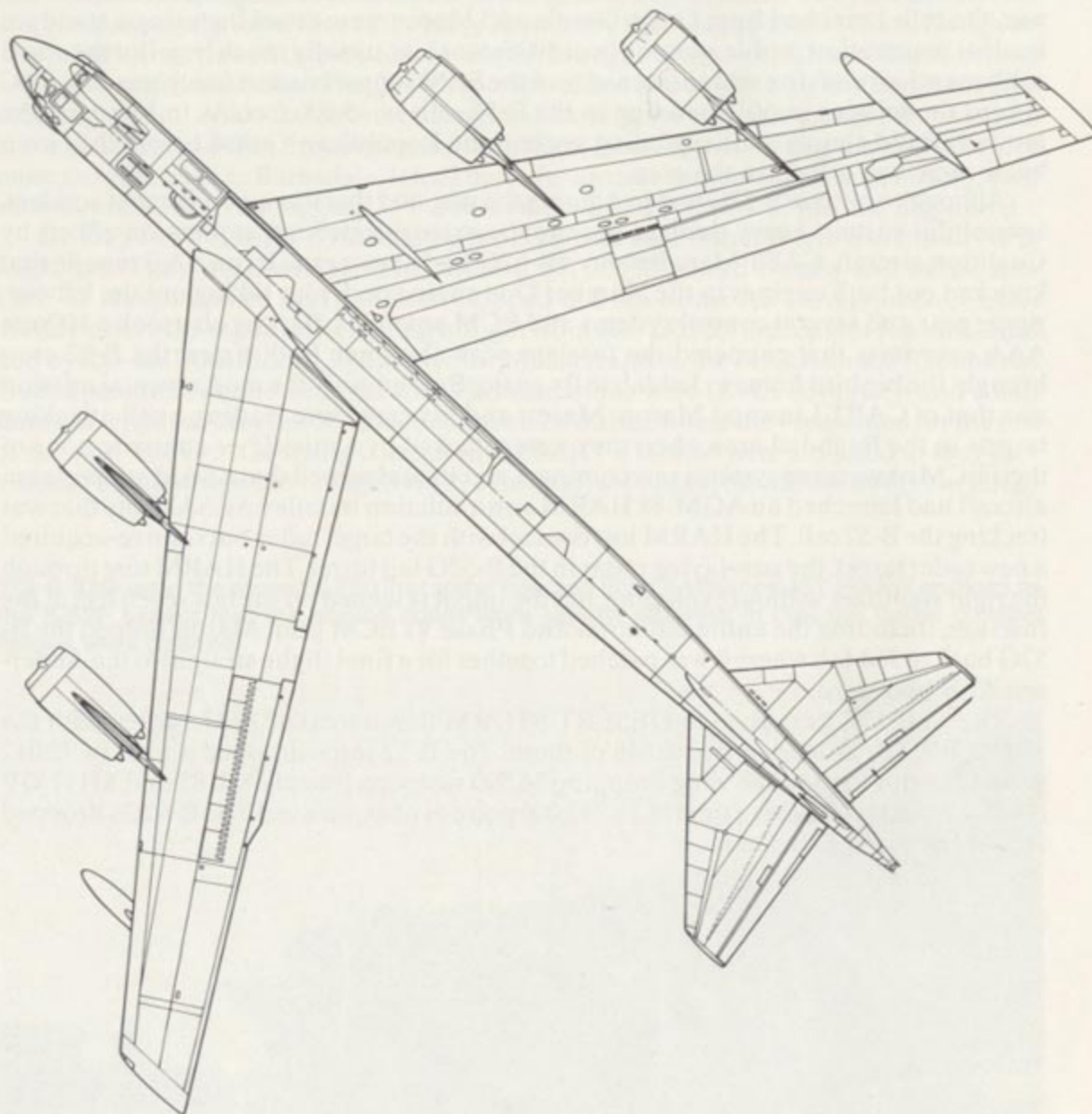
### B-52G Stratofortress (Phase VI)

Wingspan .....185 feet  
Length .....157.58 feet  
Length (Phase VI).....160.91 feet  
Height .....40.67 feet  
Empty Weight .....168,445 pounds  
Maximum Weight .....488,000 pounds  
Powerplant.....Eight 13,759 lbst J57-P-43WB  
turbojet engines

Armament.....Four .50 caliber machine guns.

#### Performance

Maximum Speed .....634 mph  
Service ceiling .....46,000 feet  
Range .....7,100 miles  
Crew .....Six

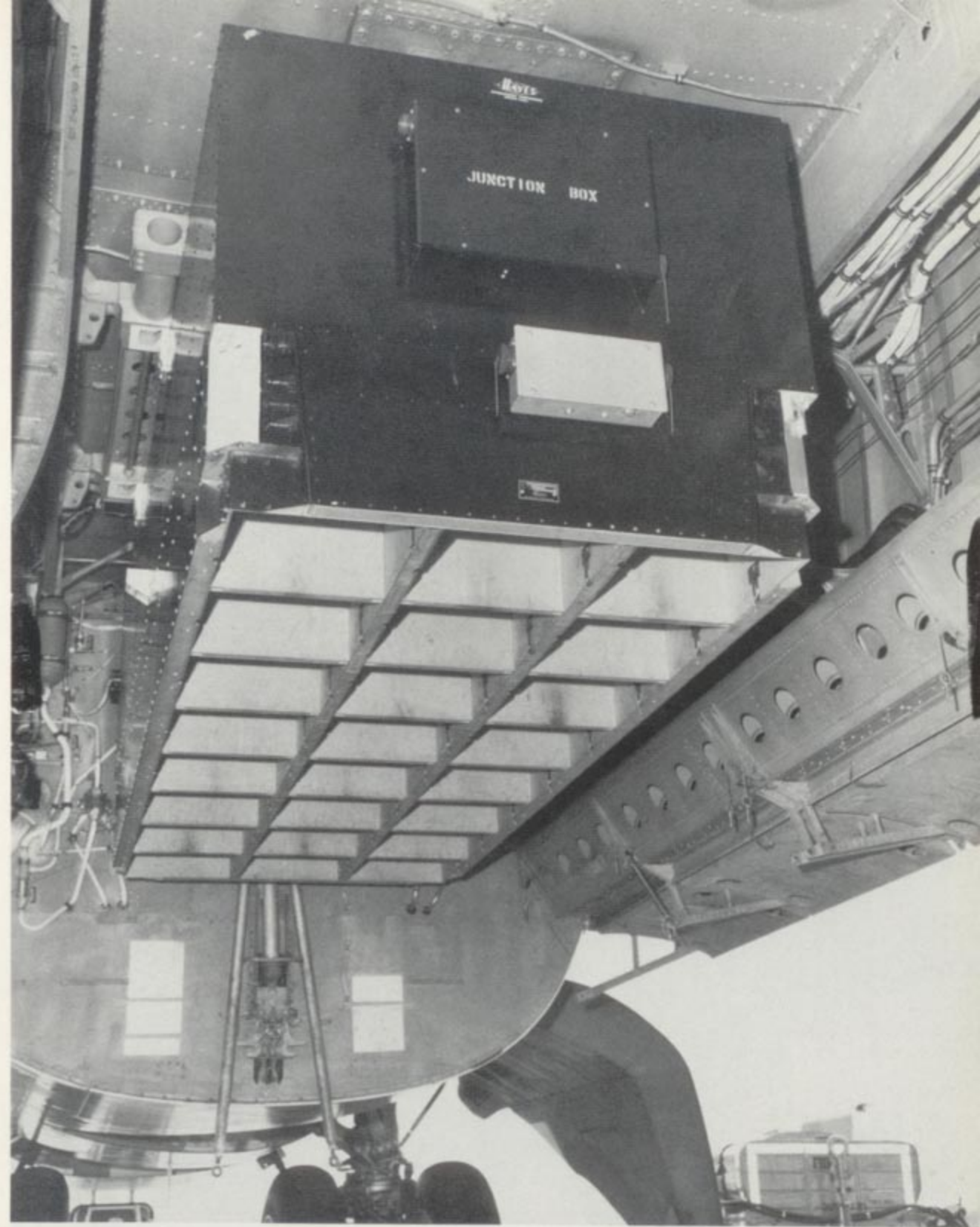




A 2nd Air Force B-52G carries a full compliment of Hound Dog missiles while on airborne alert during the early 1960s. At the height of the Cold War, airborne alert aircraft often remained aloft for 24 hours. The wingtips, nose and tail bands are in Dayglo Orange. (Marty Isham)

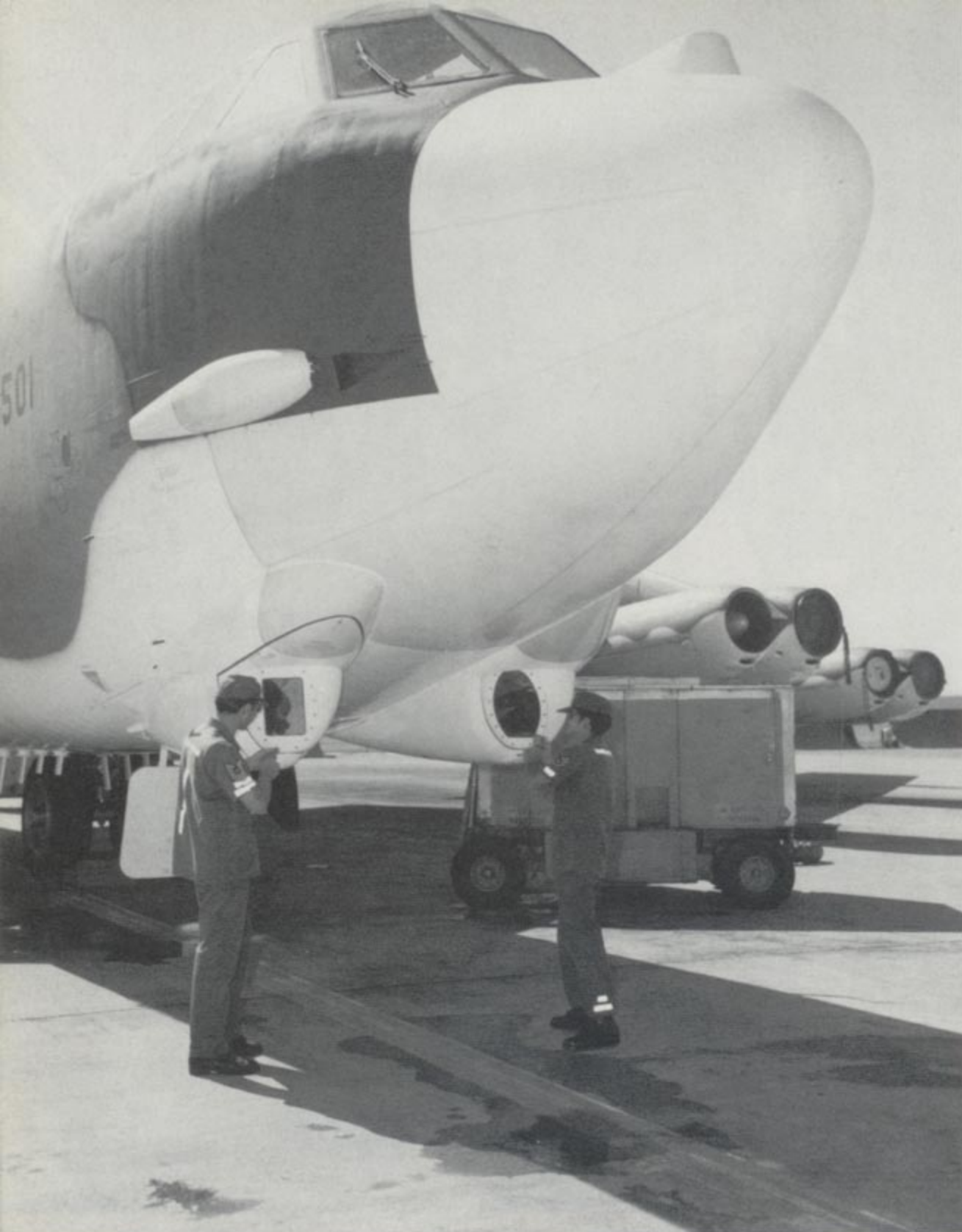


This overall Gloss White B-52G was assigned to the Air Force Flight Test Center at Edwards AFB during the mid-1970s, flying tests for the AGM-86 ALCM cruise missile program. The aircraft carries permanently mounted 700 gallon underwing fuel tanks developed for the B-52G. (LTC Barry Miller)



The B-52G could carry a Hayes Industries Cluster Bomb Unit dispenser in the bomb bay. This dispenser held a total of seventy-two CBU containers with a total of 5,328 bomblets. CBUs were highly effective in attacking air defense sites such as AAA positions or SAM sites. (Joe Bruch)





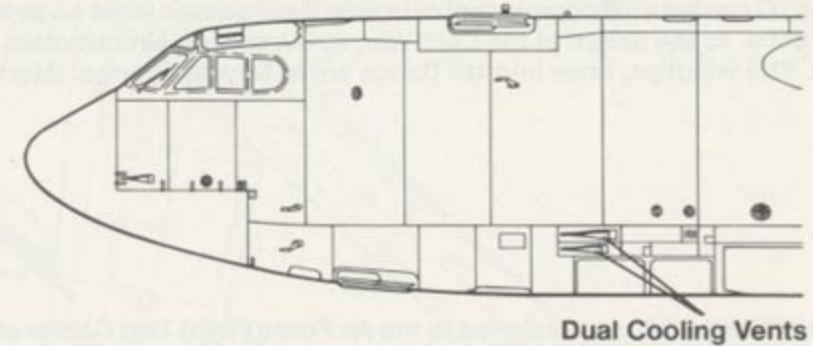
The AN/ASQ-151 EVS turrets on the underside of the nose on this B-52G house Low Light Level TV (LLLTV) and Forward Looking Infrared (FLIR) cameras and each turret is independent of the other. The blisters on the fuselage side are ALQ-117 ECM antennas. (Joe Bruch)



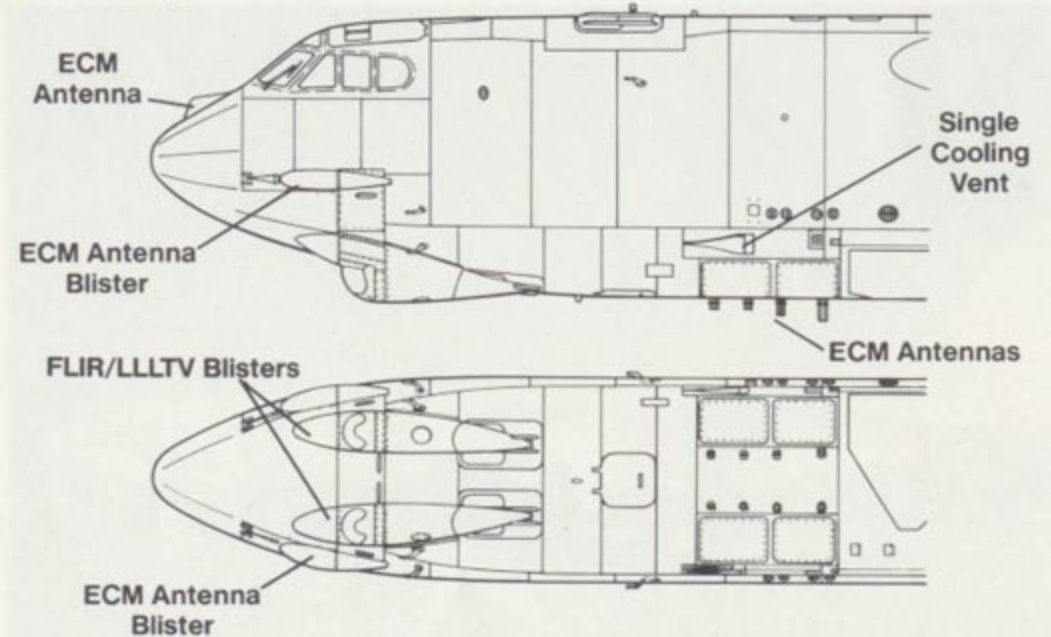
This B-52G from the 28th BW at Ellsworth AFB in 1976 has both EVS turrets closed to protect the system. The strategic camouflage or SIOP pattern is a three tone Green (FS 34201, 34159, and 34079) camouflage, not a Tan and Green pattern. (Brian Rogers)

### EVS System

#### B-52G

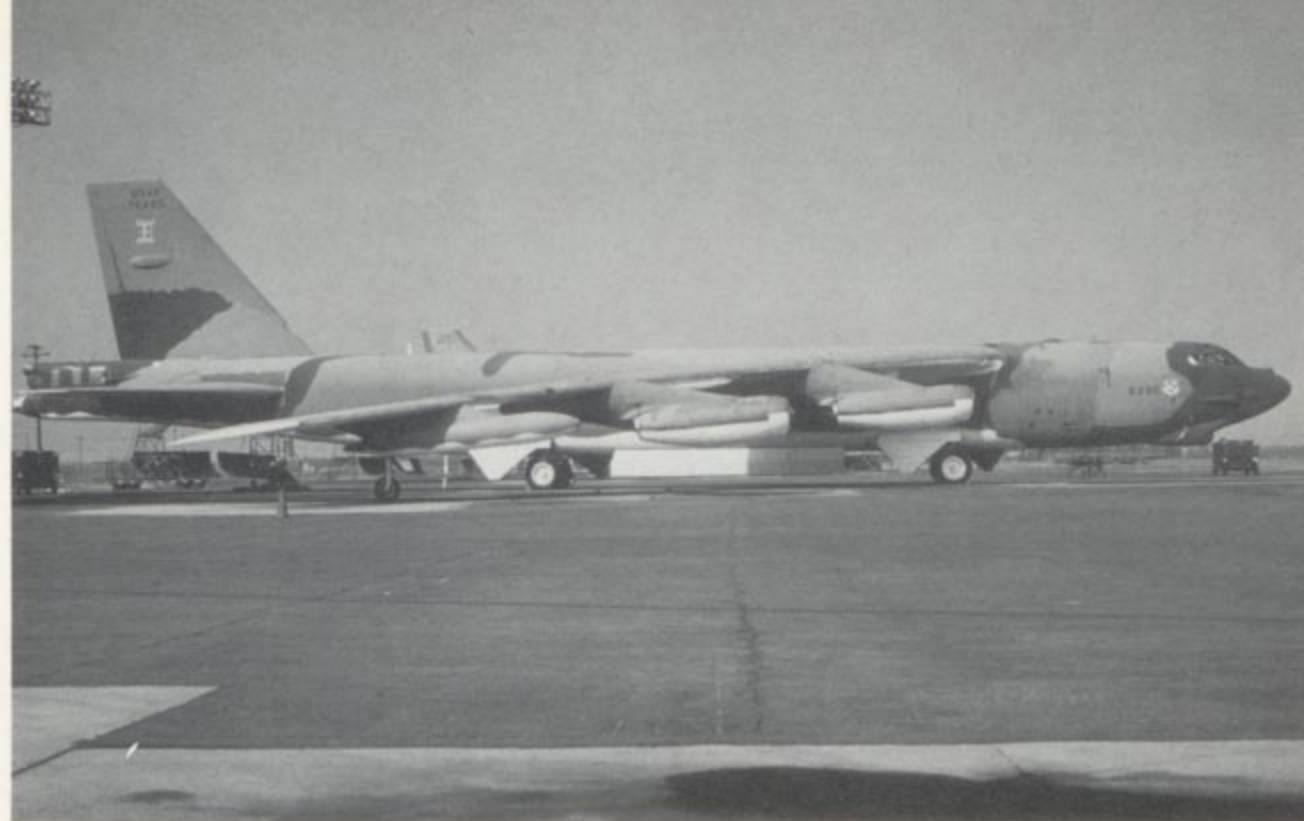


#### B-52G EVS





Project QUICK START installed cartridge starters on all eight engines to decrease the time needed to become airborne. The smoke cloud from this 97th BW B-52G is toxic and ground crews have to wear respirators during QUICK START exercises. (Joe Bruch)

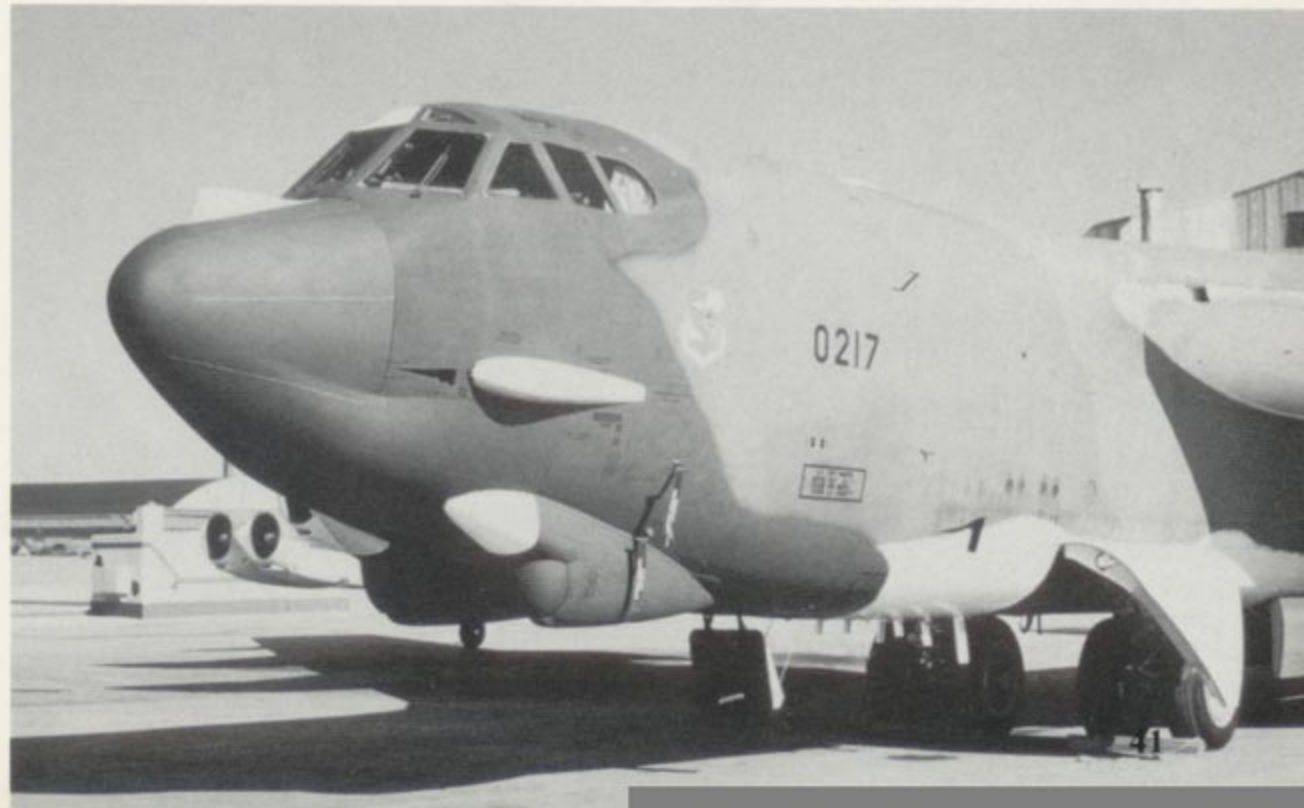


A 93rd BW B-52G from Castle AFB wears the modified SIOP camouflage scheme. SAC discovered that the White nose was highly visible during a low level attack and decided to paint the forward fuselage area in Dark Gray (FS 36081) and repainted the Dark Green (FS 34079) areas with the Dark Gray. (Brian Rogers)

A B-52G of the 43rd SW sits in a revetment at Andersen AFB, Guam during 1985. The aircraft has both the EVS and Phase VI ECM modifications and is fitted with "stub" wing pylons with HSABs mounting MERs. With the phaseout of the B-52D, the conventional munitions mission fell to the B-52G fleet. (Brian Rogers)

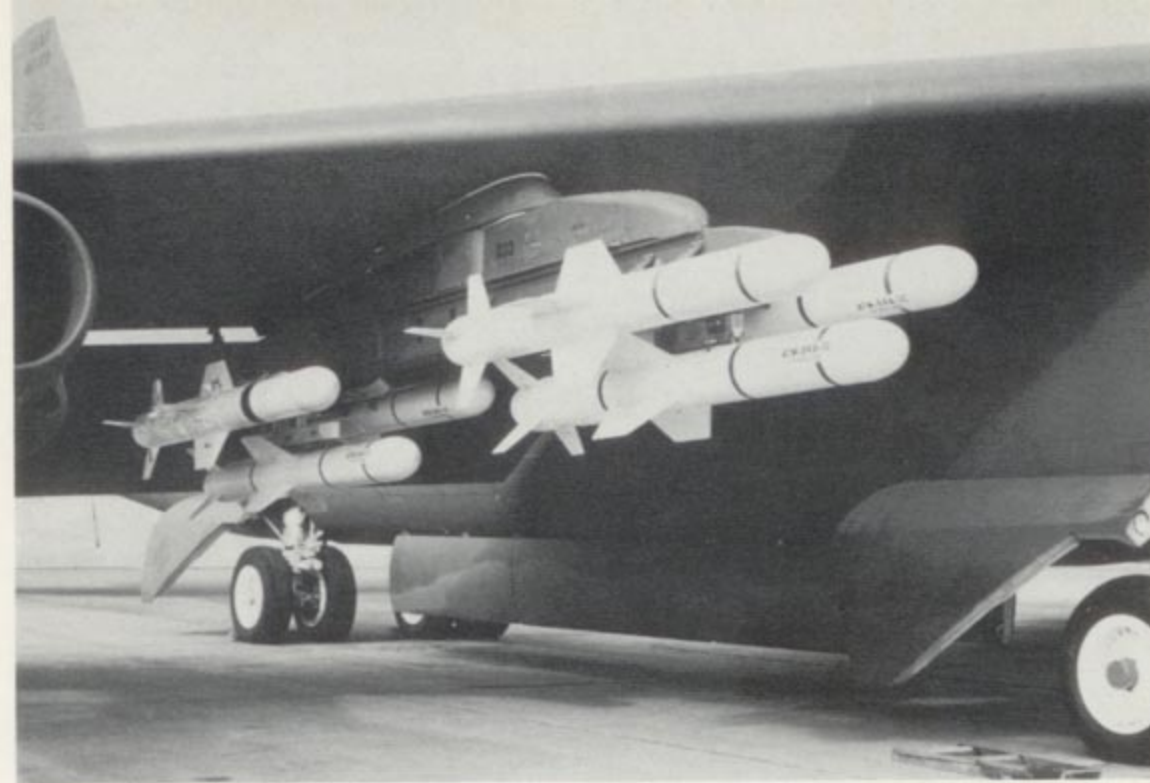


The antenna blisters on the nose of this B-52G of the 379th BW are AN/ALQ-117 ECM antennas (above the EVS turret) and an ALR-20 ECM antenna (on the radome). There are eight blade antennas under the fuselage which make up the forward ECM antenna farm. The aircraft also has the wing "strakelet" fairings which identify the aircraft as a ALCM launcher to Soviet satellites. (Brian Rogers)



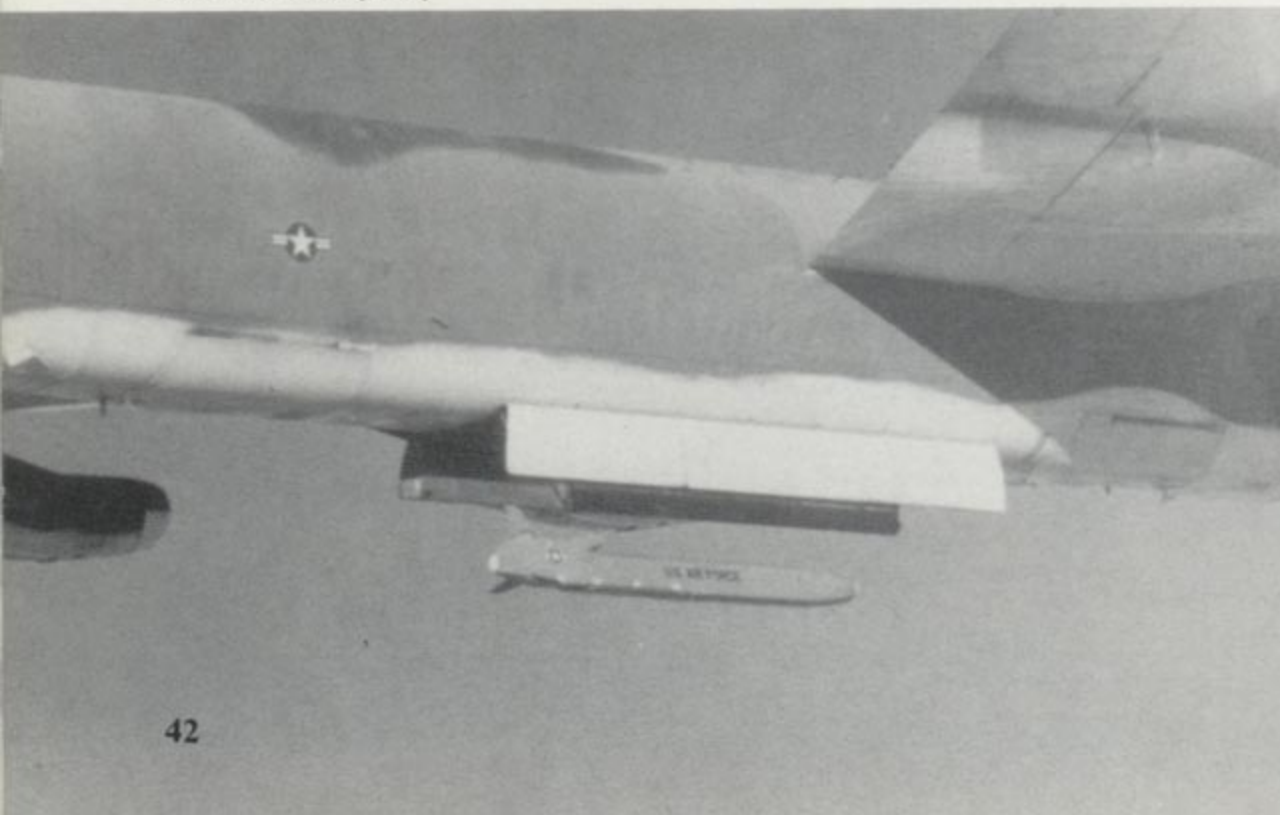


A B-52G of the 320th BW on ramp alert at Mather AFB, California in November of 1987 armed with twelve AGM-84 Harpoon missiles for a maritime patrol mission. The AGM-84 is powered by a small 660 pound thrust Teledyne jet engine. (Brian Rogers)

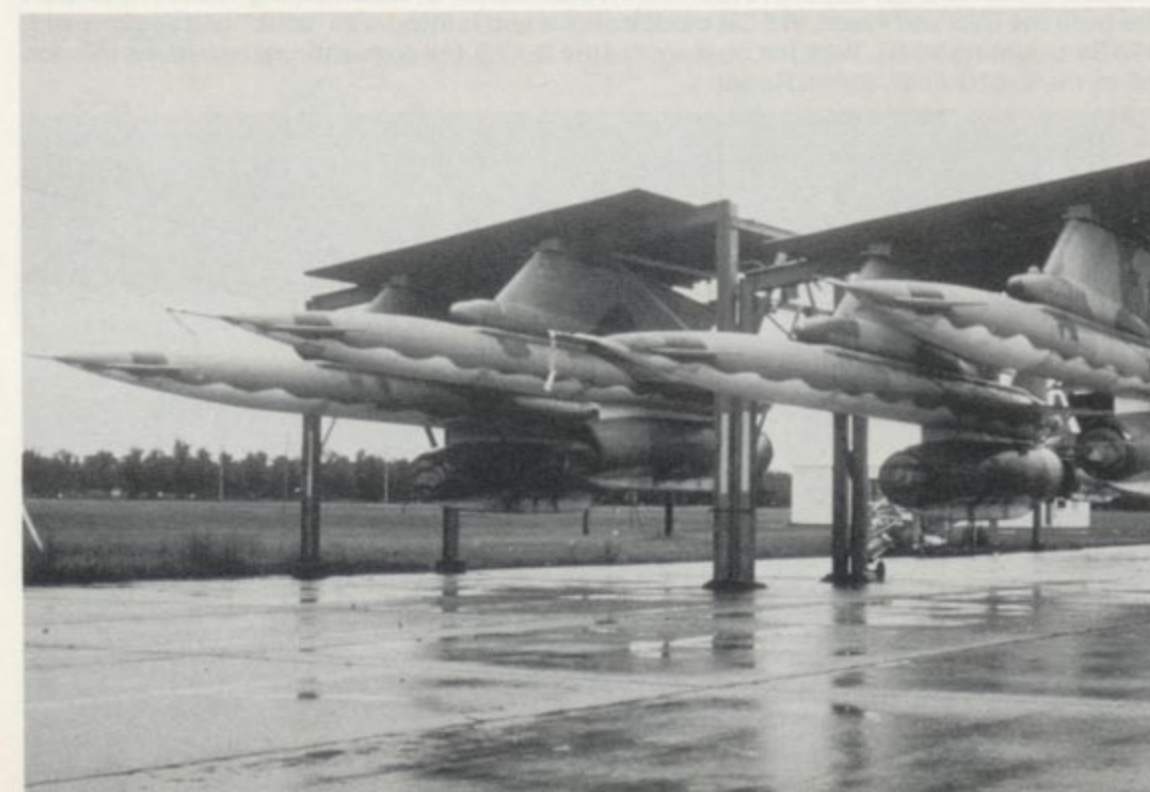


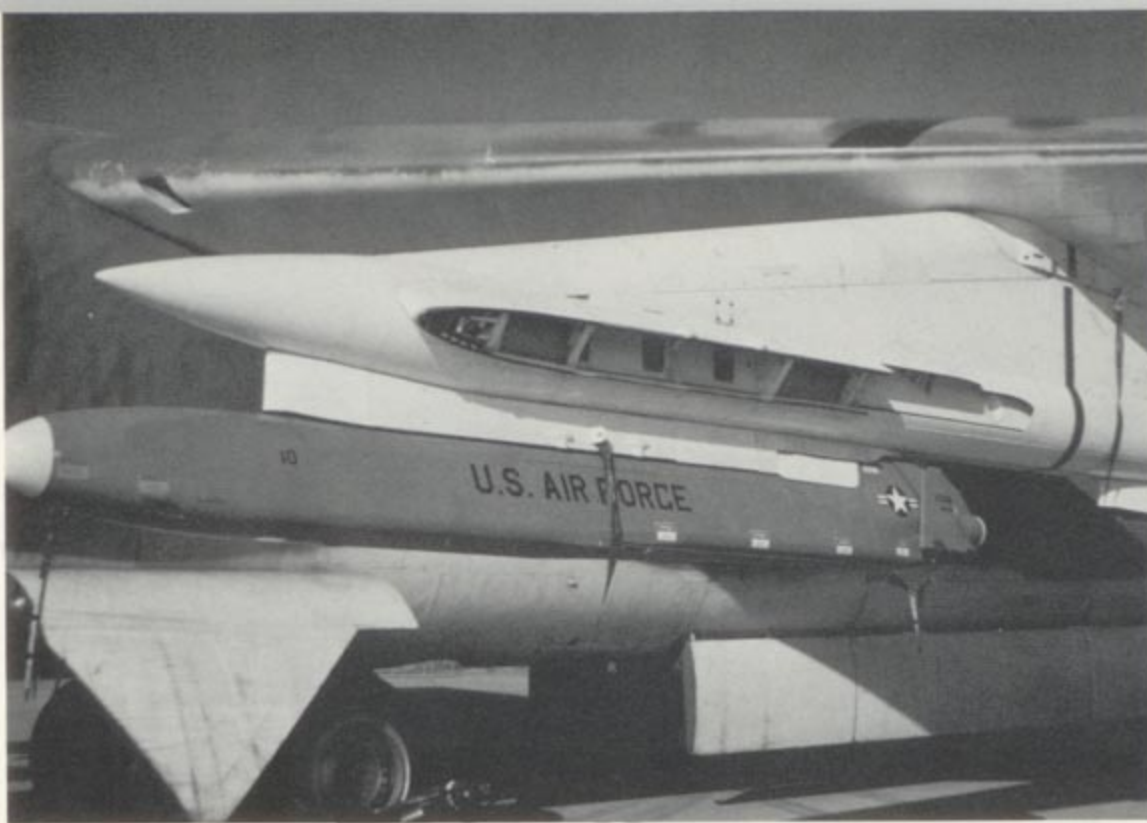
In the mid-1980s, B-52Gs began flying maritime patrol missions armed with the AGM-84 Harpoon anti-ship missile. One B-52G wing on each coast was tasked with the maritime patrols: the 42nd BW at Loring AFB and the 320th BW at Mather AFB. (Brian Rogers)

A live-fire test launch of an AGM-86B ALCM from the bomb bay of a B-52G. The AGM-86 has a range of up to 1,500 miles and can carry either a 200 kiloton nuclear or 1,000 pound conventional warhead. (AFM)

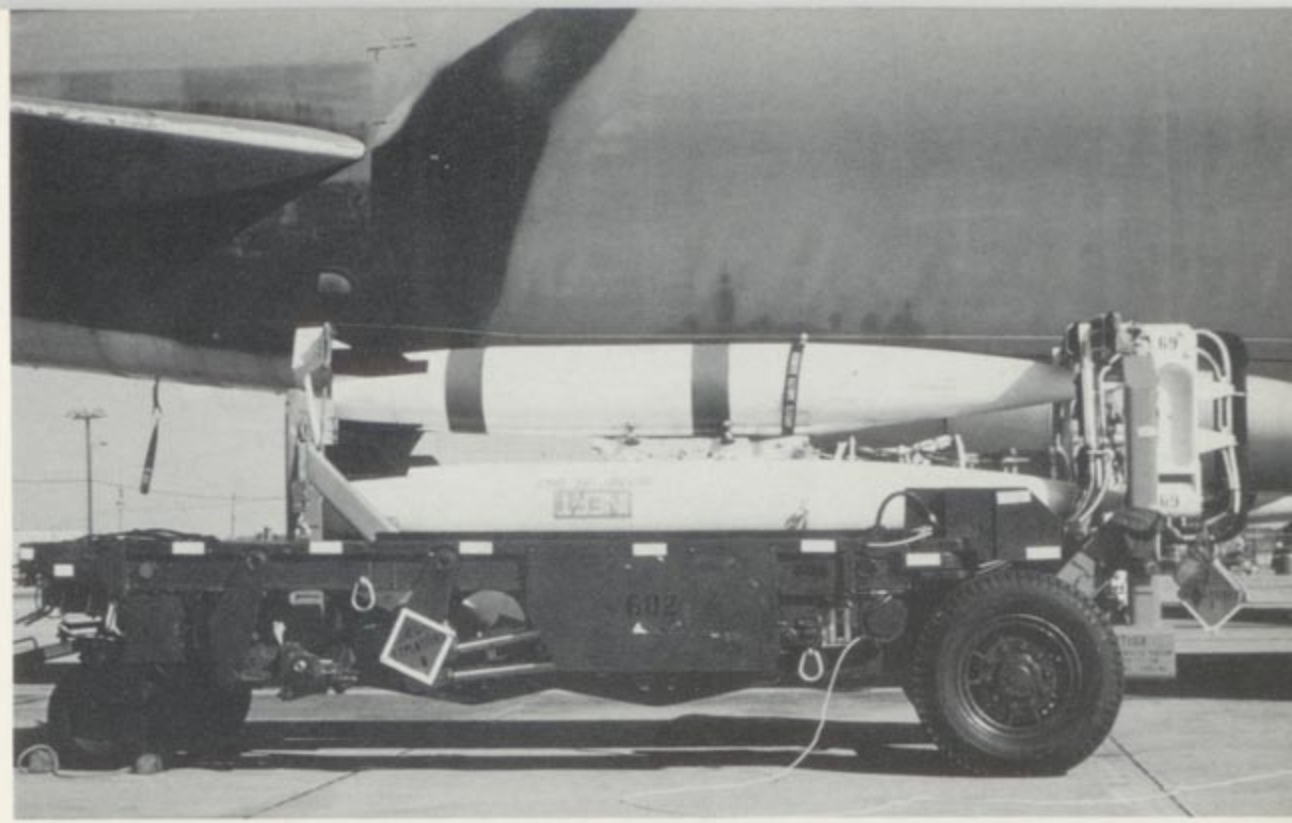


Camouflaged Hound Dog cruise missiles and their pylons hang in outdoor storage racks at Wurtsmith Air Force Base, Michigan during July of 1976. The AGM-28 carried a W-28 nuclear warhead and was targeted against Soviet air defense facilities. (Ron Thurlow)





An AGM-86B Air Launched Cruise Missile (ALCM) positioned on its specially designed pylon and MAU-12 ejector rack. Each pylon holds six ALCMs. The first SAC unit to become operational with the ALCM was the 416th BW which was declared combat ready in 1982. (Dick Starinchak)



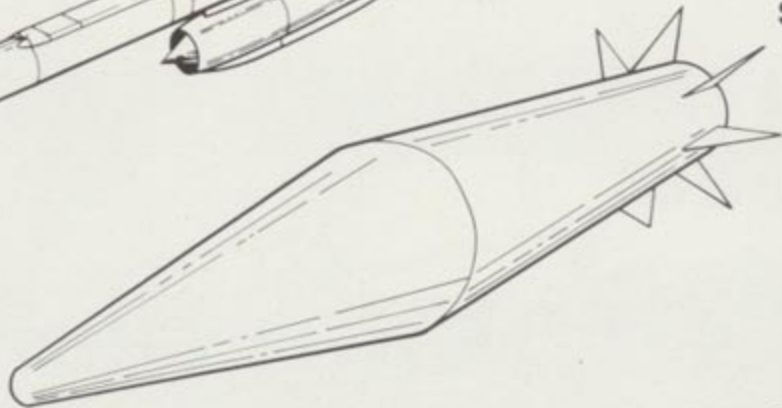
Both the Hound Dog and the Skybolt missiles were replaced by the Boeing-designed AGM-69A Short Range Attack Missile (SRAM), an Air Launched Ballistic Missile with a range of up to 100 miles. A B-52G can carry up to twenty SRAMs which are primarily used to knock out targets such as radar sites. (Brian Rogers)

### Air Launched Weapons

AGM-28A  
Hound Dog



Skybolt



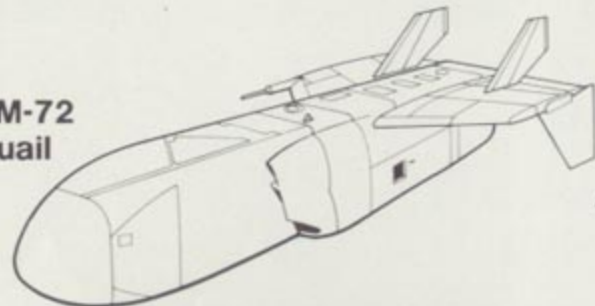
AGM-86  
ALCM



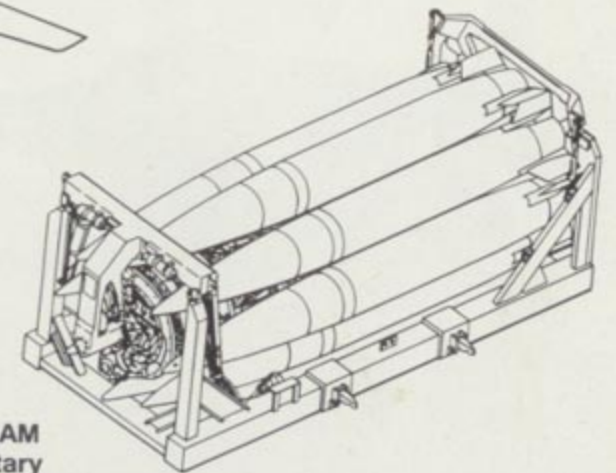
AGM-69A  
SRAM



GAM-72  
Quail



SRAM  
Rotary  
Launcher





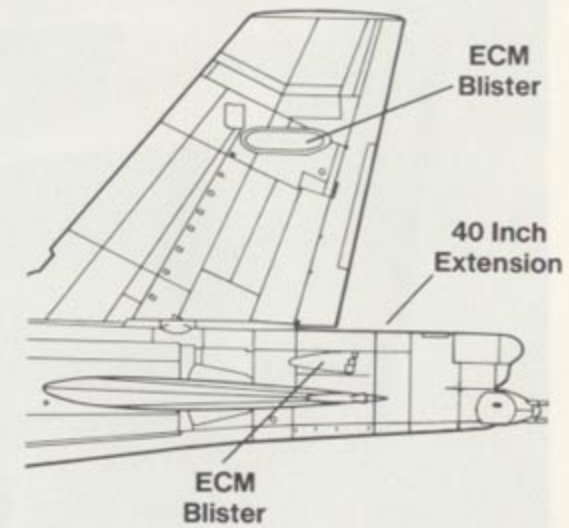
This 92nd BW B-52G in flight over Fairchild AFB in 1977 has the initial Phase VI ECM modifications to the rear fuselage. The fuselage was extended 40 inches between the tail turret and the trailing edge of the stabilizer to house the AN/ALQ-117 ECM system. (Robert F. Dorr)

## Phase VI Tail Modification

B-52G



B-52G Phase VI

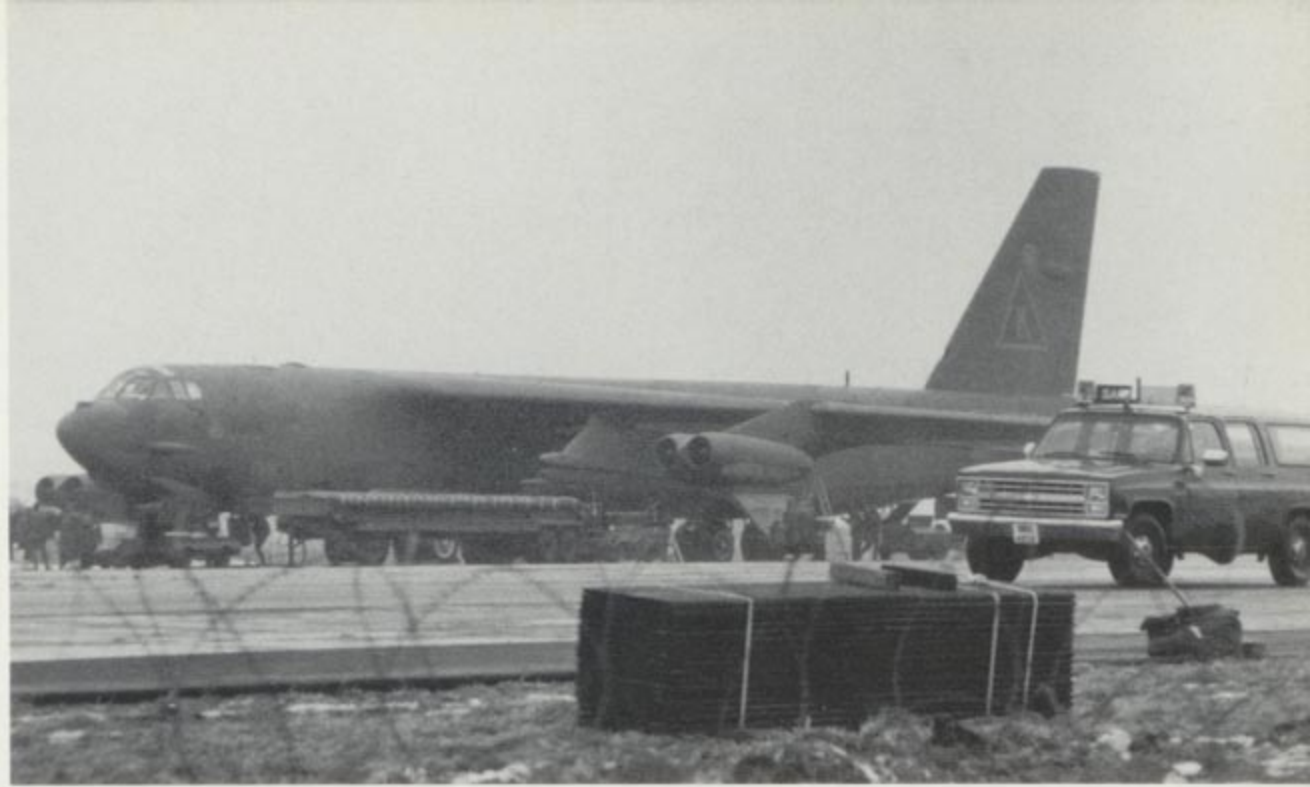


The B-52G ramp at Jeddah, Saudi Arabia during Operation DESERT STORM. SAC committed seventy-four B-52Gs outfitted for conventional munitions to the Gulf War. DESERT STORM B-52Gs were based at Jeddah, Moron (Spain), Diego Garcia Island (Indian Ocean) and RAF Fairford (United Kingdom). (Brian Rogers)





In the early morning hours of 17 January 1991, seven 2nd BW B-52Gs launched thirty-five AGM-86C cruise missiles against Iraqi targets. The 2nd BW B-52Gs had launched from Barksdale AFB, Louisiana seventeen hours prior to the attack. The B-52Gs then returned to Barksdale completing the longest combat mission in history — over thirty-four hours in the air! (USAF)



A 379th BW B-52G on the ramp at RAF Fairford in the United Kingdom. These B-52Gs were temporarily assigned to the 806th Bomb Wing (Provisional) operating out of England. Some B-52Gs used the AGM-28 Hound Dog pylons fitted with HSABs and MERs. (Simon N.J. Edwards)

Many B-52G strikes against the Republican Guard positions near Kuwait were flown using CBU-58 cluster bombs, which could penetrate the upper armor of Iraqi tanks. The CBUs were mounted directly to the HSAB without using a MER. (Brian Rogers)



CAPT Marc Batway waits at the end of the active runway at Jeddah for his turn to launch in *Buffasaurus*, a B-52G of the 379th BW. CAPT Batway's B-52G was one of ten that left Wurtsmith AFB, Michigan on Day 2 of the Gulf War, bombed the Republican Guard near Kuwait, recovered at Jeddah and remaining there until the end of the war. (USAF)





A B-52G of the 42nd BW on the ramp at Jeddah during February 1991 loaded with M117 iron bombs. The B-52Gs based at Jeddah were assigned to the 1708th BW (P) and flew over half of the total B-52 sorties in the war. B-52 strikes were flown in three plane "cells," the same as in the ARC LIGHT strikes of the Vietnam War. (Brian Rogers)



*Rushin' Nightmare* was a 416th BW B-52G assigned to the 1708th BW (P) at Jeddah. The different mission marks represented attacks from different bases: small White bomb marks were Jeddah missions, while large Black bomb marks indicated missions originating from Moron, Spain. (Brian Rogers)

Streaming black smoke from the water injection used for maximum thrust takeoffs in the desert heat, a 1708th BW(P) B-52G leaves Jeddah bound for Republican Guard positions near Kuwait. A B-52G "cell" launched from Jeddah every three hours. (USAF)



*The Moose Is Loose*, a 42nd BW B-52G at Jeddah, has thirty-seven mission markings on the fuselage in White. The B-52Gs were also used for airborne SCUD alert, rotating over northern Iraq until a SCUD launch was confirmed, then the B-52Gs were vectored to the launch area by GPS satellite for the attack. (Brian Rogers)





Weapons specialists use an MJ-1 bomb lift tractor to reload the bomb bay with M117 iron bombs. The bomb bay doors can be swung completely out of the way to ease reloading. The maximum bomb load was fifty-one bombs when the B-52G was fitted with HSABs and MERs. (Brian Rogers)

During nuclear alerts, the B-52s can be issued a MITO takeoff order, or Minimum Interval Take Off. Under this system a B-52 will leave the runway every fifteen seconds, with each taking a different departure heading. (Joe Bruch)

A B-52G of the 806th BW (P) taxis to the active runway at RAF Fairford for another long DESERT STORM mission. B-52Gs dropped 77,000 bombs on Iraqi targets in the Gulf War, a full thirty-one percent of the total weight of bombs expended in the war. (Simon N. J. Edwards)





# B-52H

Although the B-52H externally resembled the B-52G except for the engine cowlings, the B-52H was a radically different aircraft. The new engine cowlings housed an entirely different type of engine, the Pratt and Whitney TF33-P-3 turbofan engine. The TF33 turbofan engine was a development of the J57 without water injection. Instead, the TF33 had a much longer compressor stage which generated a portion of the thrust, with larger intakes and compressor blades to supply air. Hence the term "turbofan." The TF33-P-3 engines on the B-52H each developed 17,000 lbst, some 5,000 lbst more than the J57 engines on the B-52G. The turbofan engine was also much more fuel efficient, being about twelve percent more economical than the J57. The unrefueled range of a combat loaded B-52H (488,000 pounds gross weight) increased, some 2,500 miles over that of a comparable B-52G, to 12,500 miles.

The defensive armament was changed from four .50 caliber machine guns to a single General Electric M-61 20MM Vulcan cannon, with an adjustable rate of fire of between 3,000 and 6,000 rounds per minute. The flight systems, avionics and electronics remained the same as on the B-52G. The H was also designed as a missile carrier for both the AGM-28 Hound Dog and the GAM-87A Skybolt and also carried the ADM-20 Quail decoy missiles. Following cancellation of the Skybolt program, the B-52H was reconfigured to carry and launch both the Boeing SRAM and ALCM. The first B-52H came off the Wichita assembly line on 5 January 1961, with the first flight taking place on 16 March. The first B-52H was delivered to the 379th BW at Wurtsmith AFB, Michigan on 9 May 1961. Eighteen months after the first B-52H came off the assembly line, the 102nd and last B-52H came off the line. The date was 26 October 1962 and this aircraft was the final B-52 built, bringing the total to 744.

The performance of the B-52H model was so much greater than all previous variants that SAC enthusiastically began to show off its new baby to the world. On 11 January 1962, SAC initiated Operation PERSIAN RUG. A B-52H from the 4136th Strategic Wing at Minot AFB, North Dakota, made a non-stop, unrefueled flight from Kadena Air Base, Okinawa, to Torrejon Air Base, Spain — a total distance of 12,519 miles. The flight broke eleven different speed and distance records. One of the more infamous B-52H flights came on 10 January 1964 when a B-52H, with a pair of Hound Dog missiles slung underwing, encountered some extremely powerful wind gusts in the Spanish Peaks Mountains in Colorado. The Boeing flight crew had been conducting dynamic loads flight tests during low level operations when they encountered the severe turbulence. One very high gust, lasting some eight seconds, broke off part of the vertical tail assembly. Deciding that the aircraft was still air-worthy, the Boeing crew checked with SAC on a suitable place to land. Six hours after the incident, the Boeing crew brought the crippled B-52H (61-023) straight in at Blytheville AFB, Arkansas. She was a little the worse for wear, but she did bring her crew home safely.

The B-52H went through the same modifications and systems updates as the B-52G, including addition of the EVS turrets. The Phase VI ECM tail extension was done, as was the addition of the ALQ-153 TWS bumps on the vertical tail. The B-52H could carry the same weapons as the B-52G, including the Hound Dog, Quail, SRAM, and ALCM cruise missiles, as well as being a flying test bed for the cancelled Skybolt IRBM.

Both the B-52G and B-52H have gone through a variety of camouflage schemes. First was the overall natural metal scheme with the Gloss White "anti-flash" undersurfaces. Next came the SIOP nuclear strike camouflage which was Green (FS 34159), Shadow Green (FS 34079), and Light Green (FS 34201) with the "anti-flash" Gloss White undersurfaces. But the White nose of the B-52 was easily seen from above or laterally at low

altitudes and in 1984, SAC came up with a couple of "fixes." First they simply painted the radome with Dark Gray (FS 36081). Then they repainted the entire forward fuselage Dark Gray.

Beginning in 1984, a new "Strategic Camouflage Scheme" was implemented by SAC headquarters. The new scheme was Dark Green (FS 34086) and Dark Gray (FS 36081) over Dark Gray (FS 36081) and Gunship Gray (FS 36118) undersurfaces. In late 1987, SAC switched to an overall Dark Gray (FS 36081) scheme because the Dark Green faded badly and was not easy to touch up. Finally, in early 1991, B-52Gs started coming back from the Tinker AFB depot in overall Gunship Gray (FS 36118). SAC crews jokingly refer to the new scheme as "Air Superiority Gray" and "Ghost Gray" — but the color is the same Gunship Gray used on AC-130 Spectre gunships and F-15E Strike Eagles.

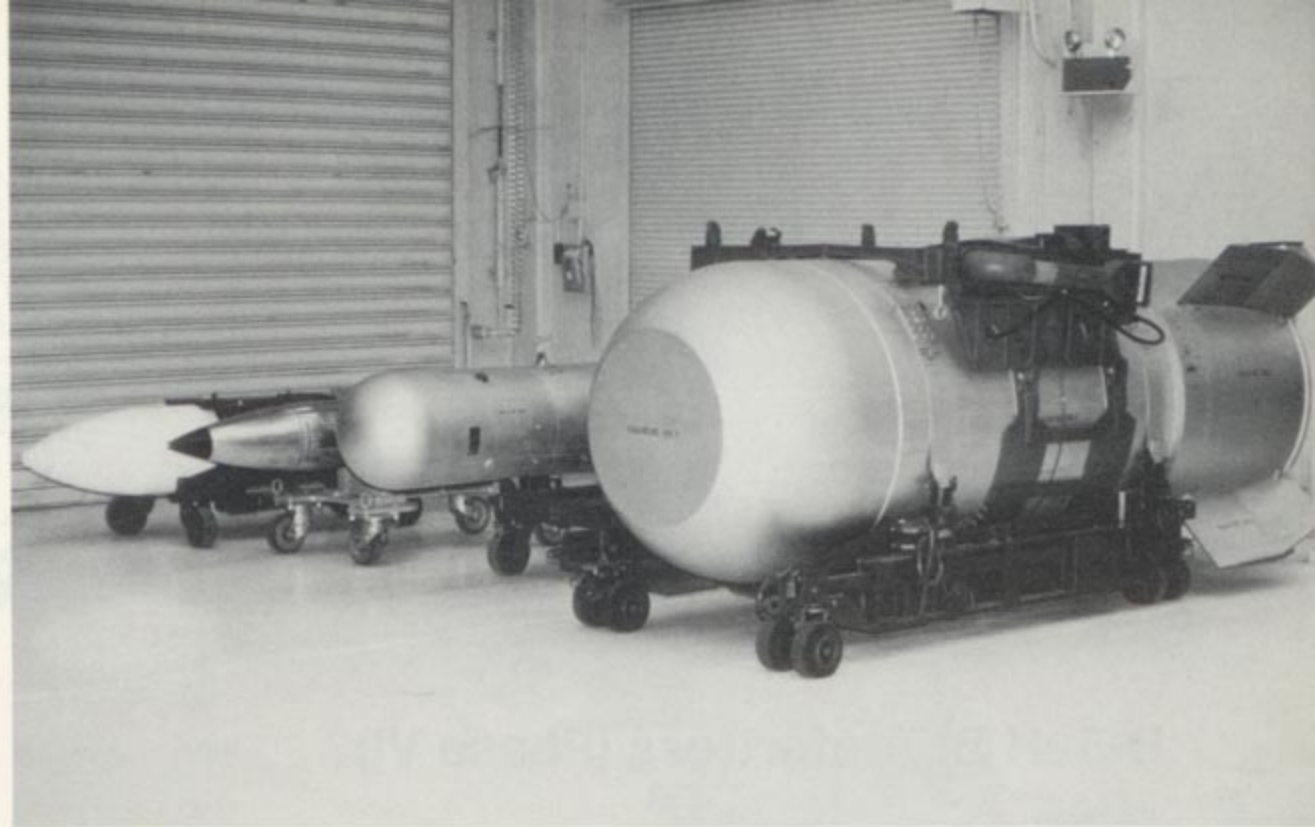
The B-52H can also carry the General Dynamics AGM-129A Advanced Cruise Missile, one of the new generation ALCMs with some "stealth" features. The AGM-129A can carry the same nuclear and conventional warheads as the AGM-86, and has a range of over 2,000 miles. A few B-52Gs can also carry the Rafael/Martin Marietta AGM-142 HAVE NAP or POPEYE air-to-surface missile. One final change took place on 1 October 1991. It was a subtle but distinctive change, and one that will not be easily forgotten. It was on that date that GEN Lee Butler, Commander In Chief of SAC, grounded all the gunners in the B-52 fleet. The turrets remain but the weapons have been deactivated. It seems that the tail gunners were the first items to be shelved following the demise of the Soviet Union.

*Homestead's Hesperides/Guardian Of The Golden Peace* was a B-52H of the 19th BW based at Wurtsmith AFB during the Cuban Missile Crisis. The B-52H was powered by eight 17,000 lbst Pratt & Whitney TF-33 turbofan engines. (Joe Bruch)





Yosemite Sam adorns the tail of the *RED RIVER RAIDER*, a B-52H of the 319th BW, while at the 1981 GREAT STRIKE competition held at RAF Marham. The aircraft appears very patchy due to the difficulty in matching camouflage paints. (Joe Bruch)

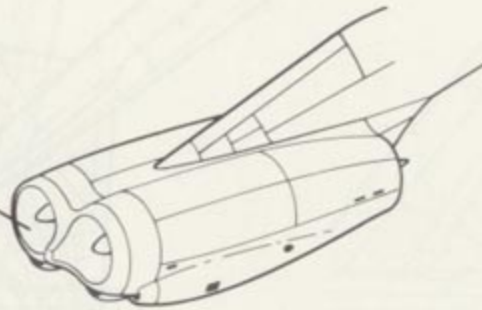


Although "Peace Is Their Profession," the primary job of SACs B-52 force is the delivery of thermonuclear weapons against an enemy. These are four types that can be carried by B-52s (rear to front) — the B83 (one to two megaton yield), B61 (ten to 500 kiloton yield) B28 (70 KT to 1.45 megaton yield) and the B53 (nine megaton yield). (Brian Rogers)

## Engine Development

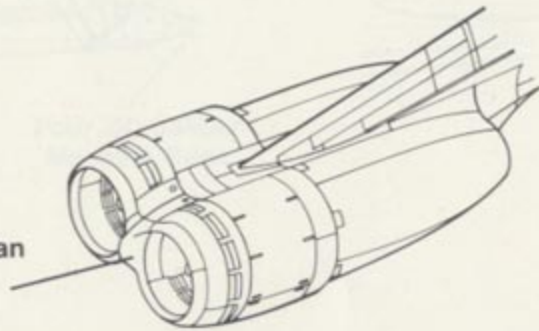
B-52G

J-57 Turbojet Engines

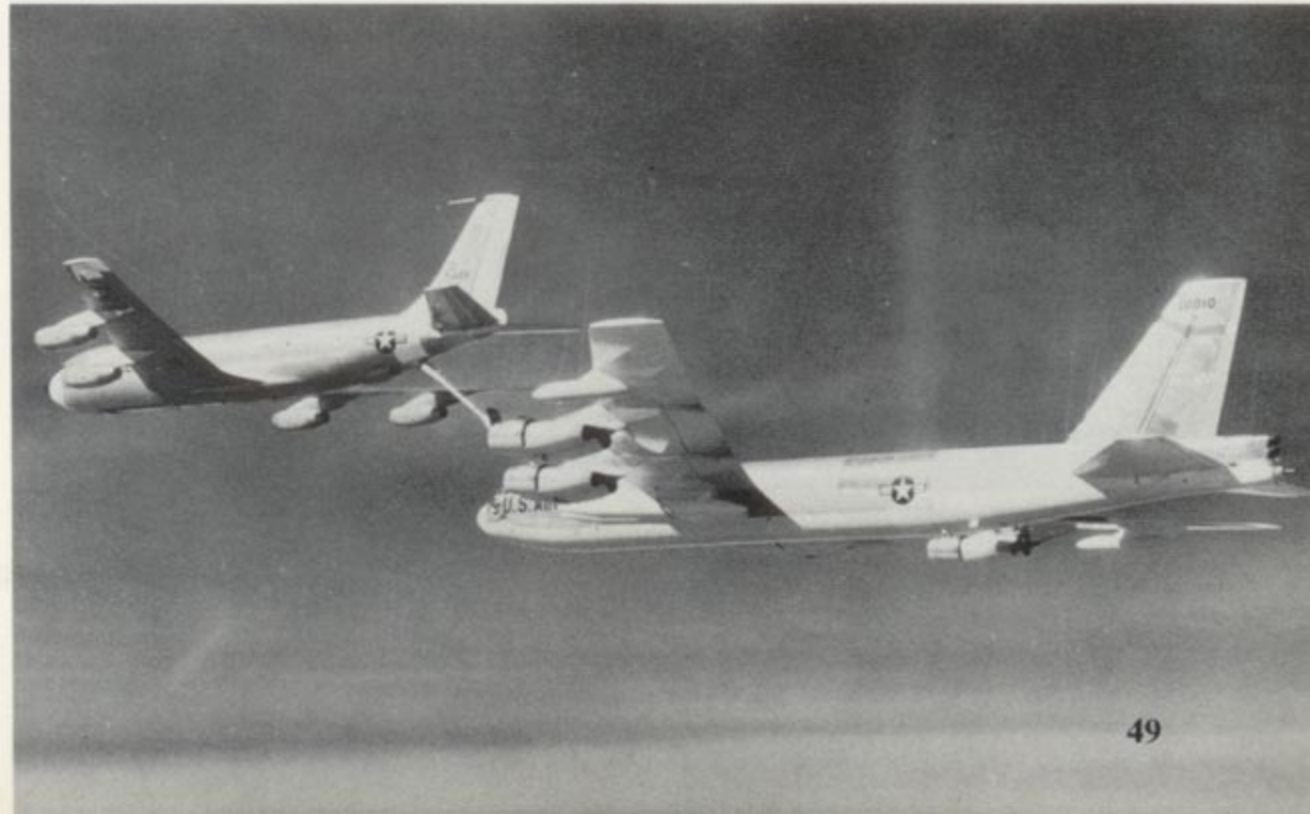


B-52H

TF-33 Turbofan Engines



A B-52H of the 17th BW armed with a full load of Douglas GAM-87A Skybolt ALBM "shapes" takes on fuel from a KC-135 jet tanker. The unrefueled range of the B-52H with its much more economical TF-33 engines is 12,500 miles. Of course, with inflight refueling the range is limitless. (USAF)



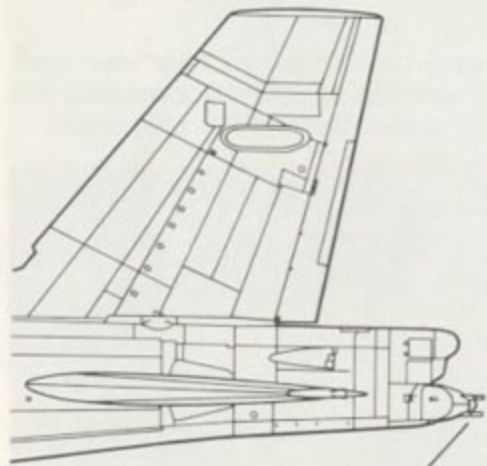




A 410th BW B-52H streams its drag chute and slows to a stop. The B-52H was armed with an M61 Vulcan tail turret and has the Phase VI ECM rear fuselage modification for the AN/ALQ-117 ECM equipment. The bulge on the side of the vertical fin is the AN/ALE-153 RHAW antenna fairing. (Brian Rogers)

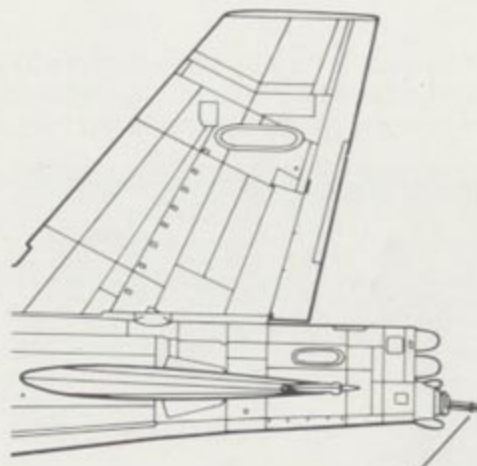
### Tail Turrets

B-52G (Phase VI)

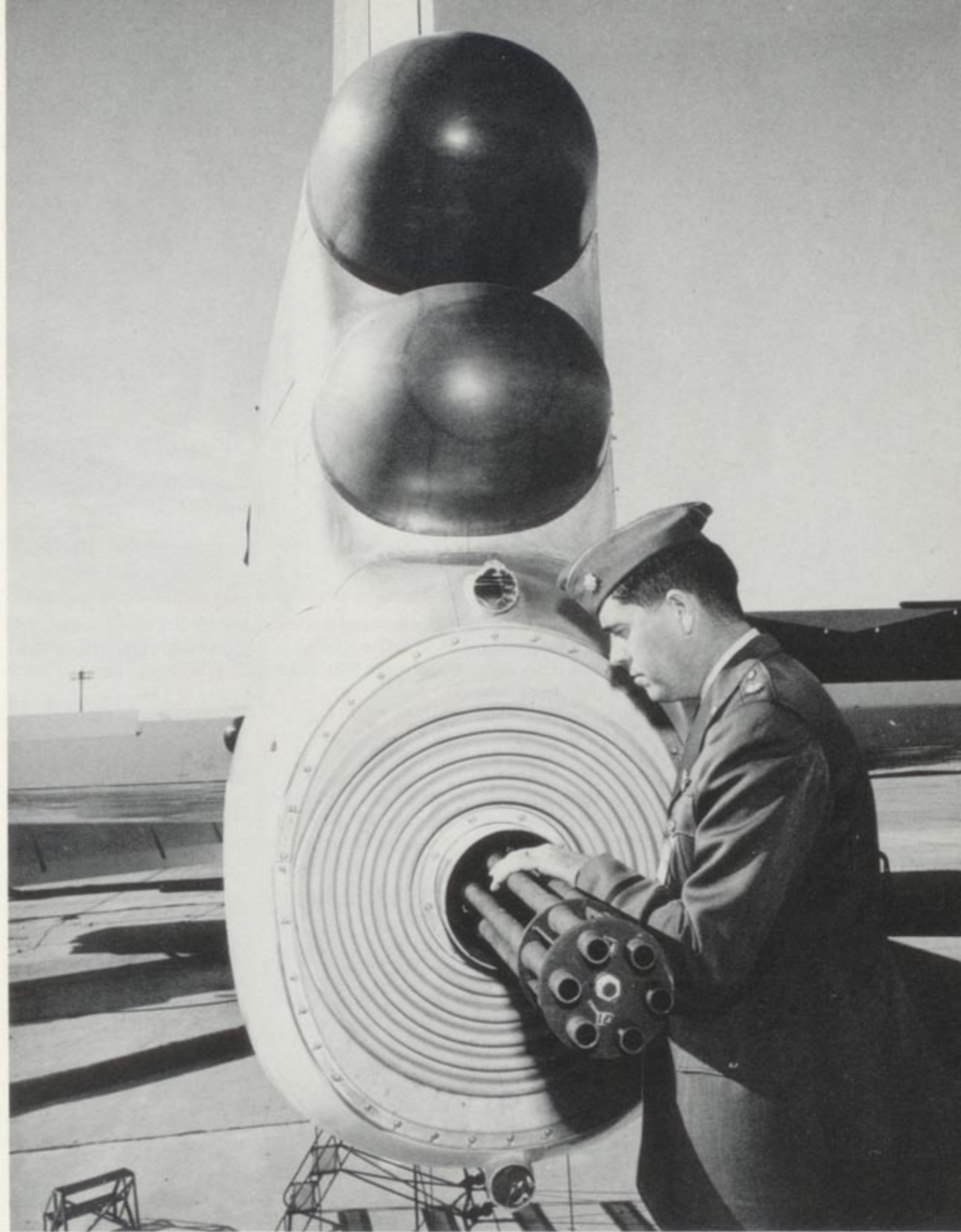


Four .50 Caliber Machine Guns

B-52H (Phase VI)



One 20mm Vulcan Rotary Cannon



The tail armament of the B-52H consisted of a General Electric M61 20mm Vulcan cannon which could fire either 3,000 or 6,000 rounds per minute. The cannon was tied into the AN/ASG-71 Fire Control System. (Boeing)



A 449th BW B-52H parked on the ramp at RAF Marham during the RAF Bomb Competition held in 1967. USAF SAC B-52 crews participated in the RAF exercise but were beaten by their RAF Vulcan counterparts. The engine intake lips were SAC Blue with White stars and a Red 2 was painted on the tail fin. (Robert F. Dorr)



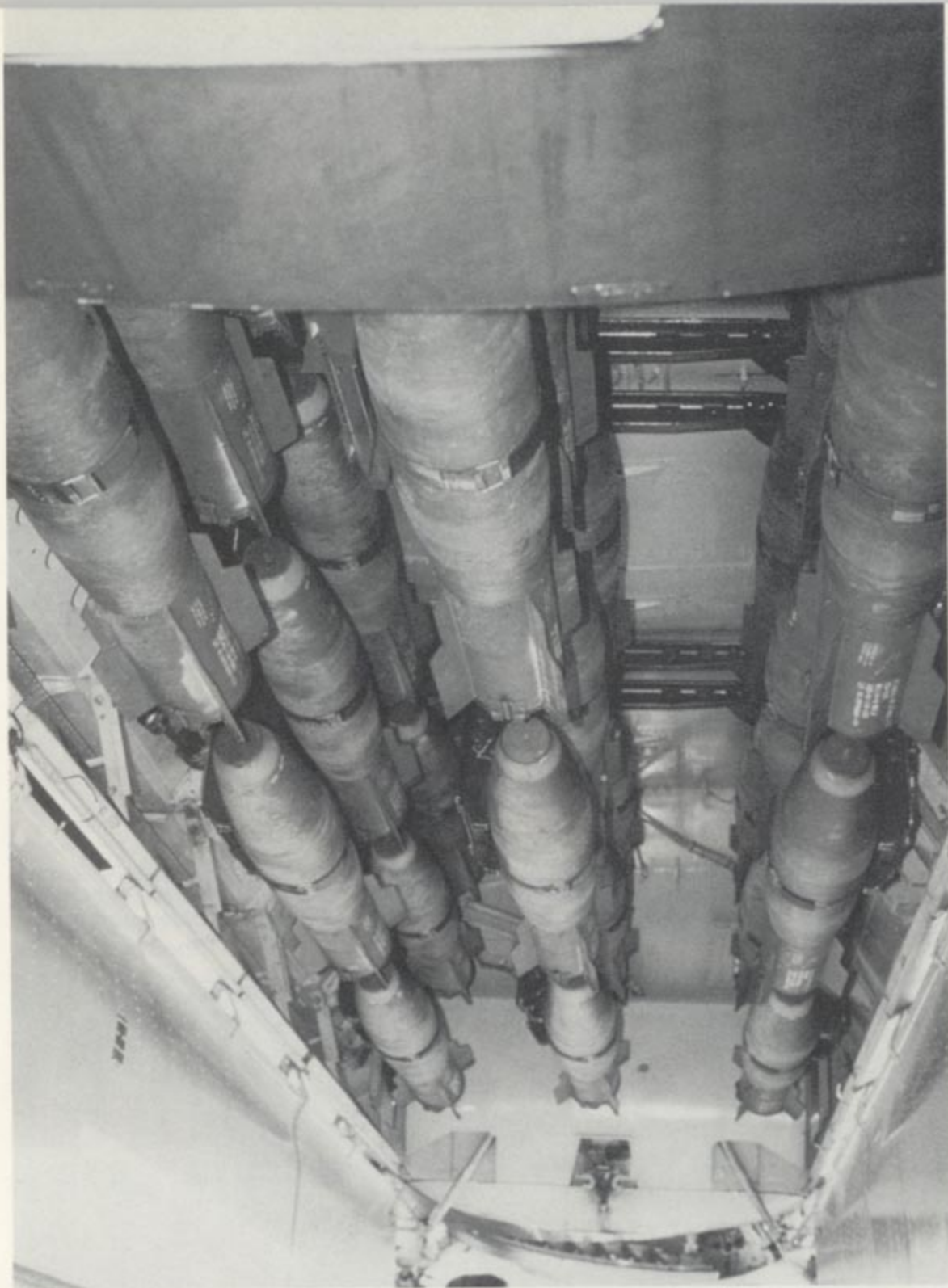
A B-52H of the 17th Bomb Wing on the ramp at Wright Patterson AFB during 1970 is prepared by ground crewmen for repainting in the new three tone Green SIOP camouflage. The Hound Dog missiles and pylons will also be camouflaged. (USAF)

A very bright JB-52H assigned to the Air Force Flight Test Center at Edwards AFB. The aircraft has a Dayglo Orange forward fuselage, engine pods, pylons, wing leading edges, underwing tanks and vertical fin. The aircraft was used in the cruise missile test program during 1980. (Jim Rotramel)



Ten "cocked" B-52H Stratoforts of the 379th BW parked on the "Christmas Tree" alert ramp at Wurtsmith AFB. The aircraft were fully armed with nuclear-tipped Hound Dog missiles and thermonuclear gravity bombs during the Cuban Missile Crisis of October 1962. (Joe Bruch)

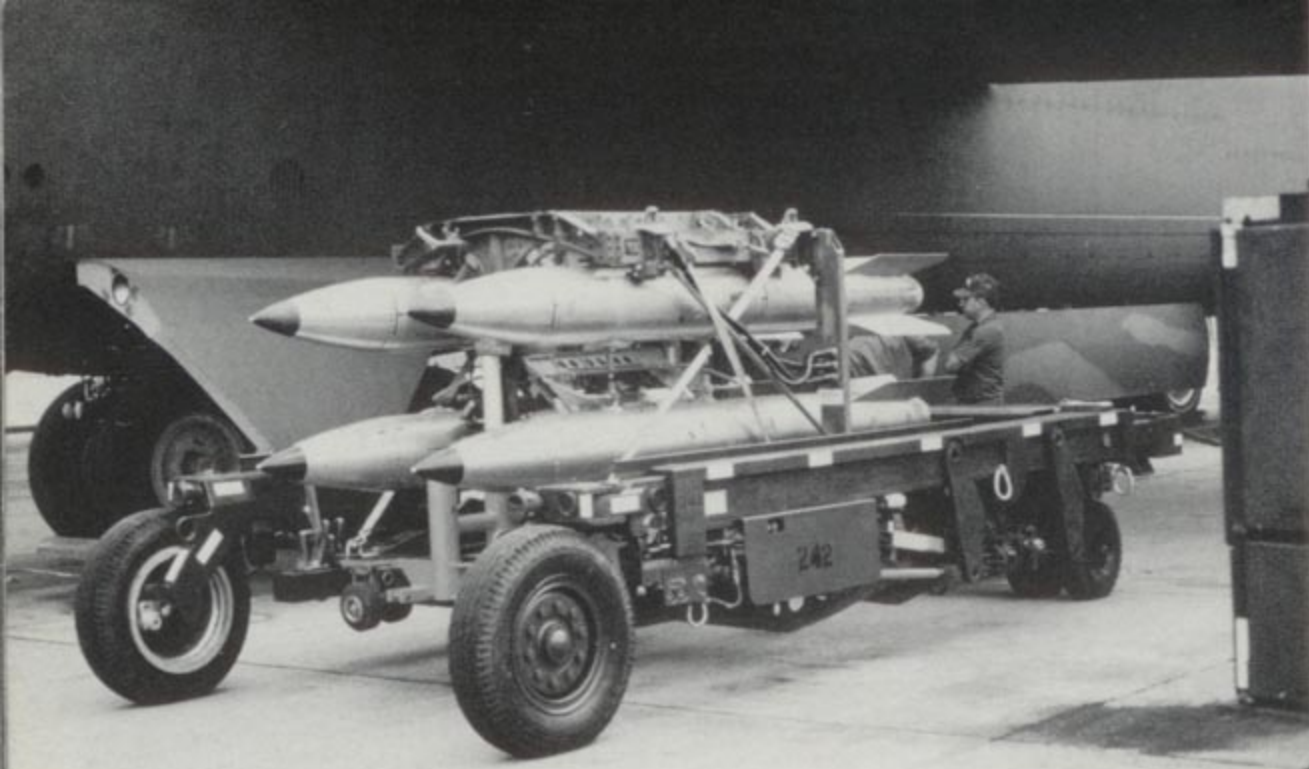




The internal bomb bay of a B-52H can be configured to carry conventional munitions. When so configured, it holds twenty-seven M117 750 pound bombs. As B-52Gs are retired, the conventional mission will be passed to the B-52H crews in the new USAF Combat Command.(Brian Rogers)

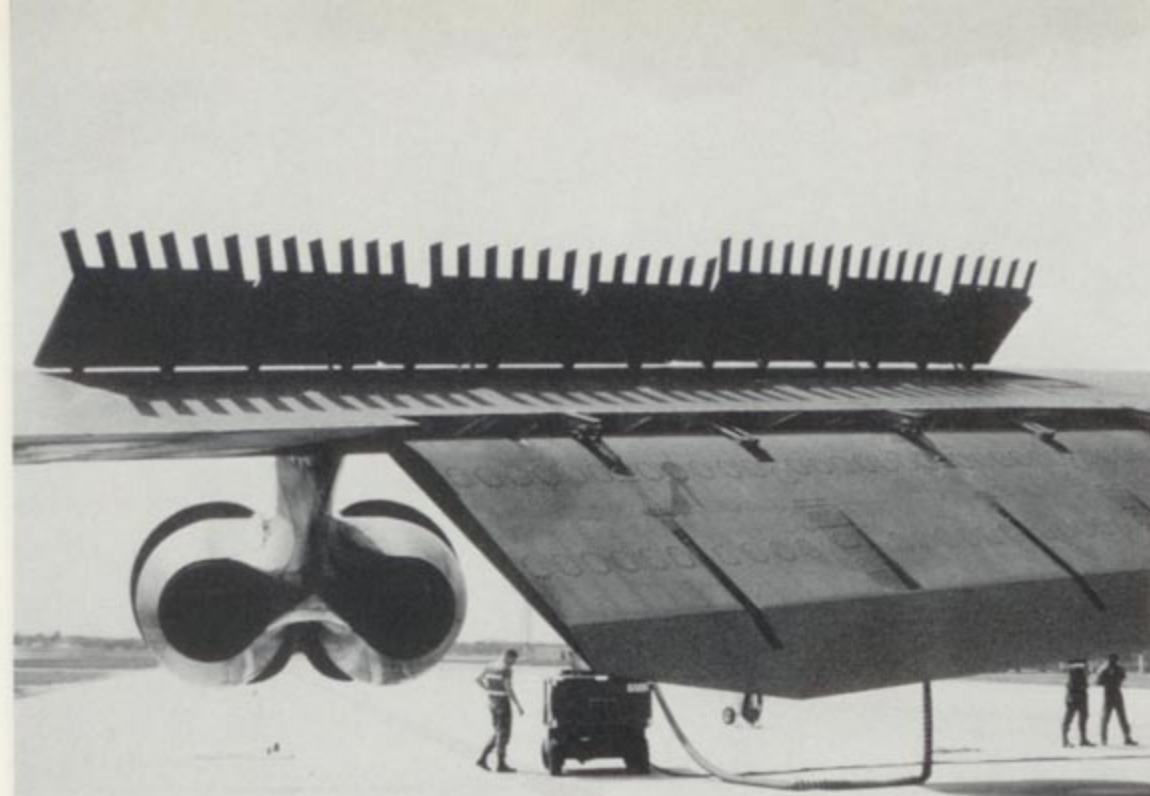


The open bomb bay of a B-52H configured with a Common Strategic Rotary Launcher or CSRL, which can hold up to eight SRAMs or ALCMs, or a mix of the two missiles. The B-52H can carry up to twenty SRAMs or ALCMs when fitted with underwing pylons. (Brian Rogers)



A full "clip" of B61 nuclear bomb training devices known as "shapes" loaded on the PWE-9C special munitions handling trailer. The B61 nuclear weapon has a selectable yield of from 10 kilotons to 500 kilotons. (Brian Rogers)

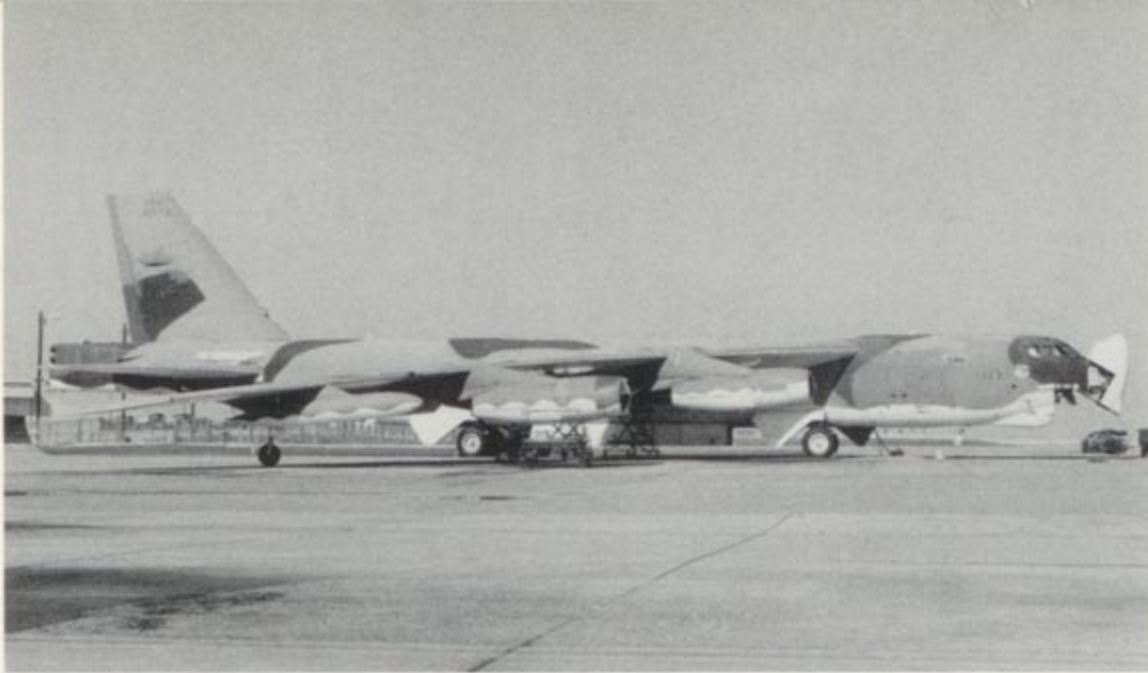
The *CITY OF FAIRBORN*, a B-52H of the 17th BW, based at Wright-Patterson AFB, on the ramp at McCoy AFB during the 1970 GIANT VOICE bombing competition. The crews were graded not only on airborne proficiency and results, but also on maintenance. The name was Yellow with Black trim, while the 2 was Yellow with Red trim. (Ken Buchanen)



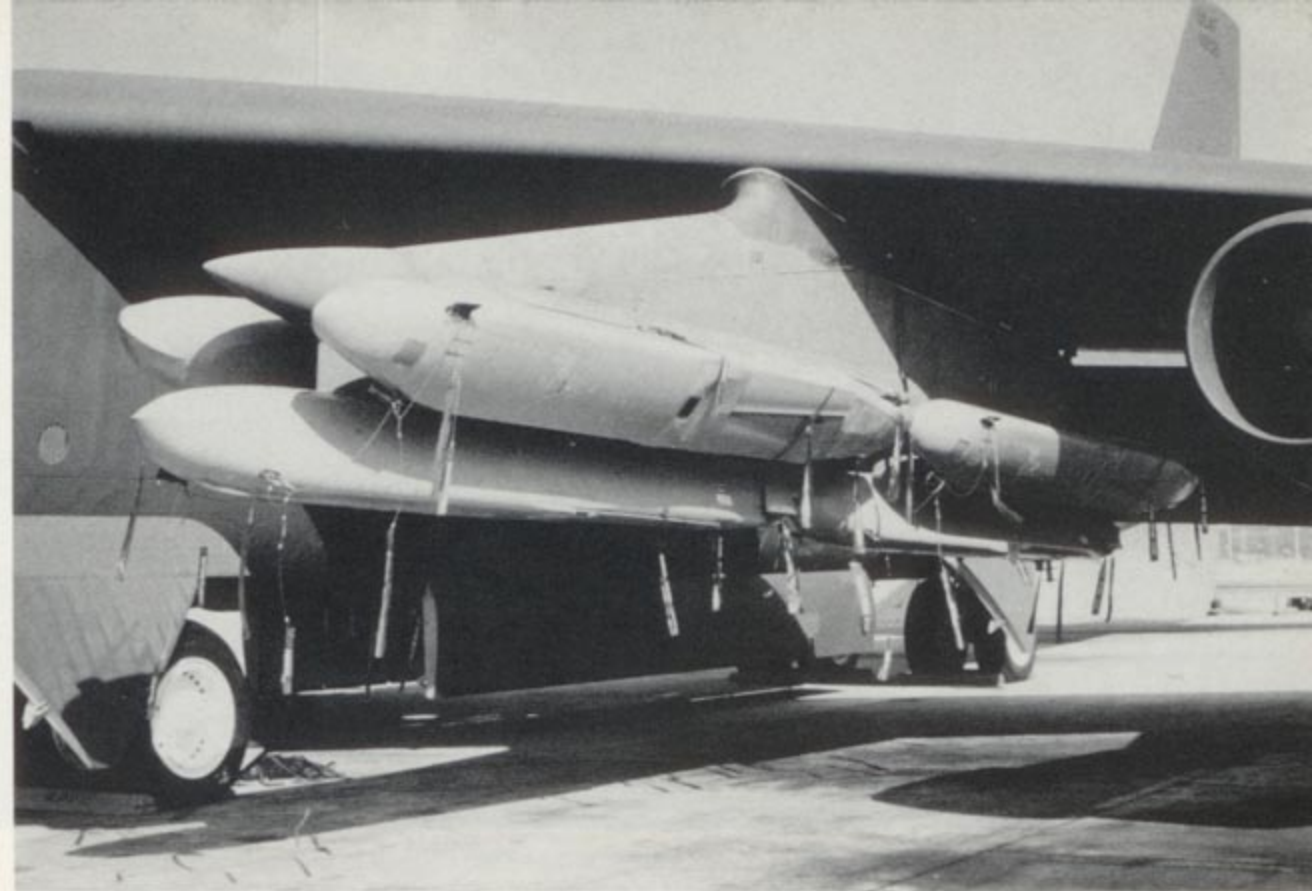
One of the minor differences between the B-52H and the earlier B-52 variants was a staggered spoiler on the wing upper surface. (Brian Rogers)

Ground crewmen have removed the outboard engines from this 7th Bomb Wing B-52H. The 7th BW was based at Carswell AFB, Texas until late 1992 when most of its aircraft were transferred to Barksdale AFB. (N. J. Waters III)





A B-52H of the 7th BW on the ramp at Carswell AFB, Texas during the early 1980s. The B-52G/H radome is a one-piece unit hinged at the top. The Offensive Avionics System ground mapping radar and ALR-20 ECM gear is located within the nose radome. (Brian Rogers)

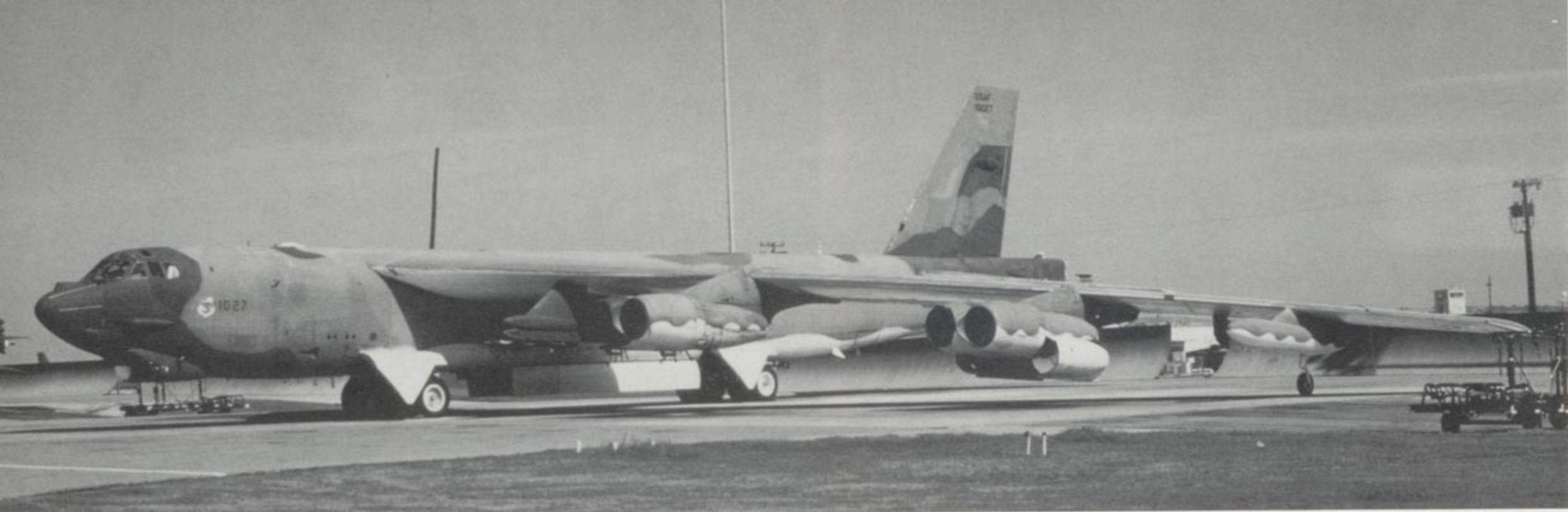


Six AGM-86 ALCMs mounted on their special pylon equipped with MAU-12 ejector racks. When the ALCMs are launched, the folded wings deploy, the engine starts and the TERCOM mapping computer sets up for the target which can be up to 1,500 miles away. (Brian Rogers)

*Someplace Special*, a 410th BW B-52H on the ramp at RAF Marham during the 1981 RAF Bomb Competition known as Operation GREAT STRIKE. The aircraft had special "D-Day Invasion Stripes" and Second World War squadron codes on the fuselage in Black for the event. (Joe Bruch)





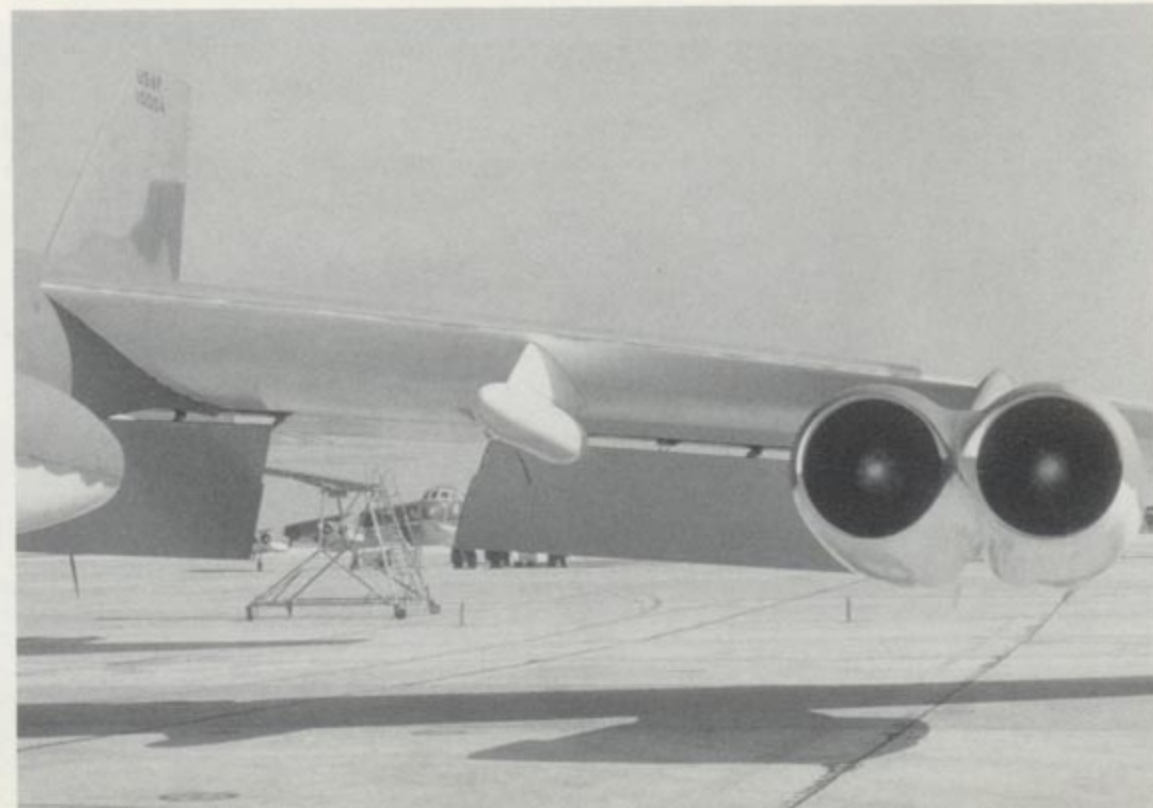


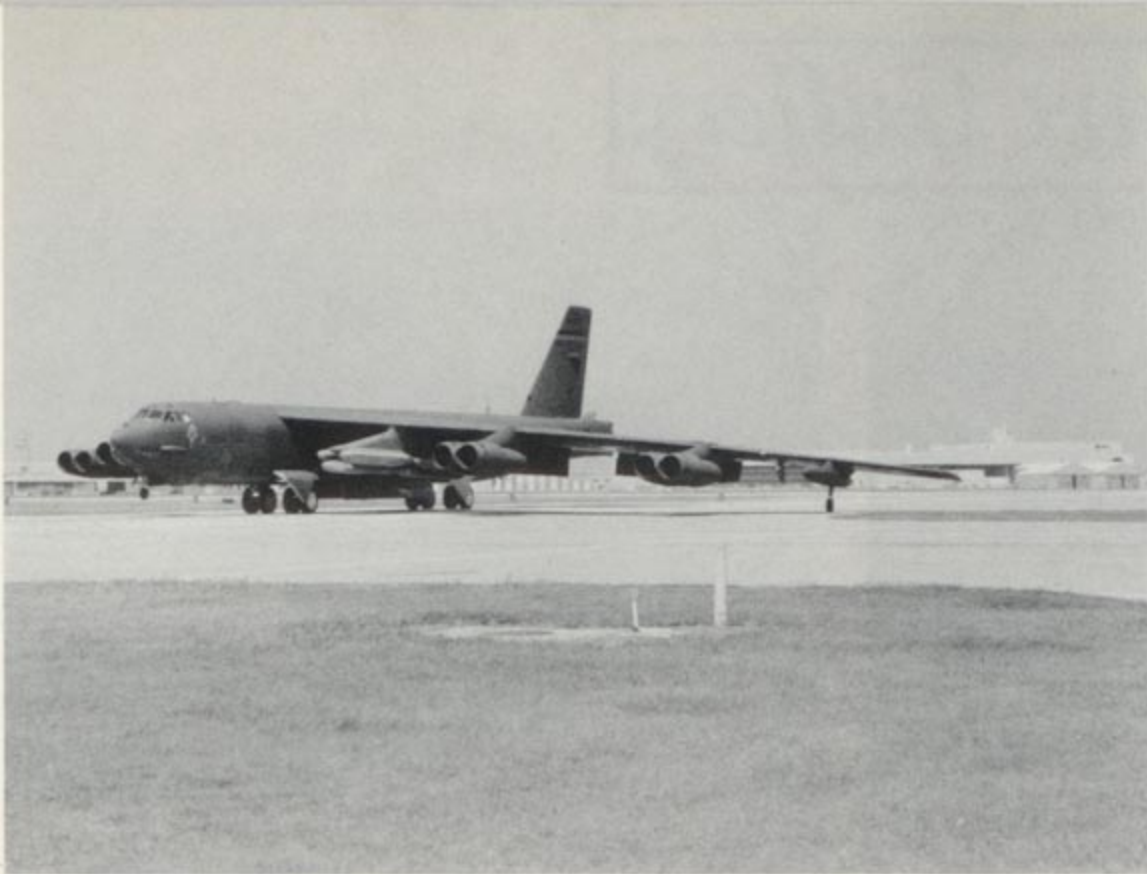
For the conventional mission, B-52Hs carry the AGM-28 pylon which can be mated to the HSAB mounting a pair of MERs, allowing a maximum bomb load of twelve 500 or 750 pound bombs on each pylon. These are 500 pound Mk 82 bombs. The AGM-28 pylon does not fit well when attached to the underwing hard point normally used to mount the ALCM pylon. (Brian Rogers)

This B-52H is painted in the modified SIOP camouflage scheme which had the forward fuselage repainted Dark Gray (FS 36081). This was done because the White nose of the original SIOP scheme was far too visible. (Brian Rogers)



The ALE-25 was a forward-firing chaff dispenser used in the late 1960s and early 1970s. The launcher fired chaff rockets out ahead of the B-52 to confuse enemy radars. (Joe Bruch)



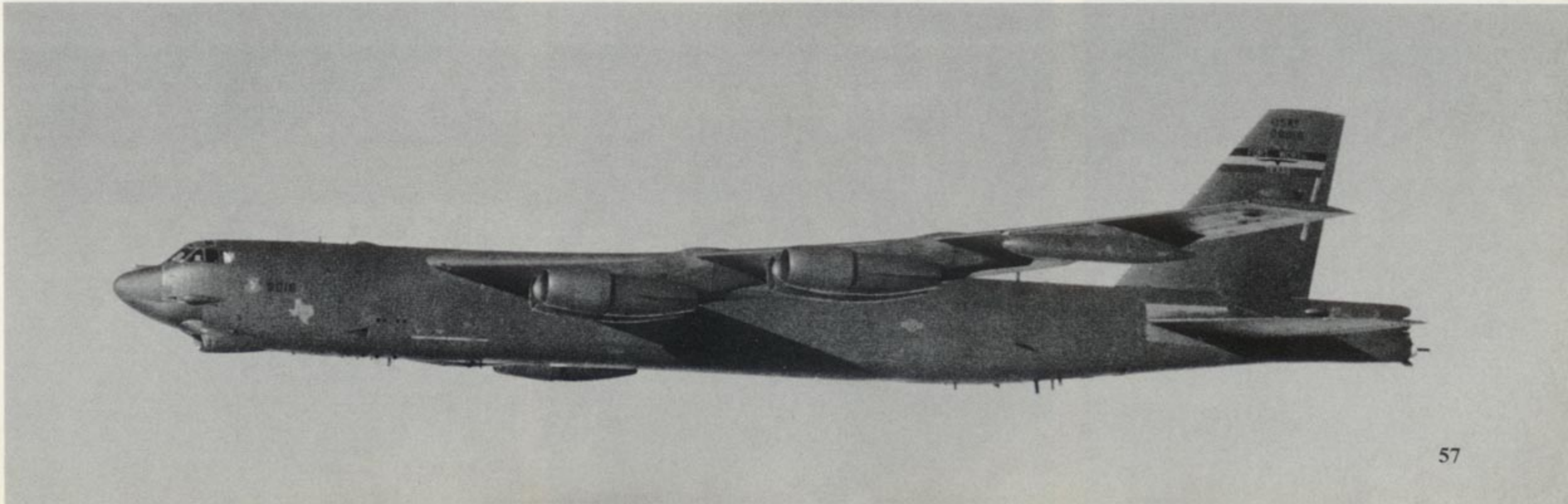


*Master Blaster*, a 7th BW B-52H taxis back to the parking ramp at Carswell with a full load of AGM-86B ALCMs following a simulated mission. The B-52H can also carry the General Dynamics AGM-129 Advanced Cruise Missile, one of the new generation "stealthy" ALCMs which reportedly has a range in excess of 2,000 miles. (Brian Rogers)



This B-52H is the flagship of the 9th BMS at Carswell AFB, Texas and is marked with the unit's Second World War insignia. With all the advances in terrain-following radar, EVS and the multitude of ECM systems, the B-52H could be around well into the late 1990s. (Brian Rogers)

This B-52H of the 9th BMS at Carswell AFB carries the "Fort Worth" city logo on the tail fin. It is painted in the overall Dark Gunship Gray (FS 36081) camouflage. Every available space on the B-52H has been used for either fuel or ECM equipment to make the old warhorse more survivable. (Brian Rogers)



# B-52 Nose Art Gallery



*Someplace Special*, a B-52H of the 410th BW, took part in the 1981 Royal Air Force Bomb Competition at Marham, England.



*Tommy's Tigator*, a B-52D of the 4925th Test Group (Atomic), heads away from the test sight after one of the nuclear test shots at Bikini during the late 1950s.

