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## *Long Rifle of the Air Age* THE 60-YEAR HISTORY OF THE B-52 STRATOFORTRESS

SCIENCE & DESIGN :  
DESIGN

By JAN  
TEGLER   on  
9.3.14



When General Nathan Twining, chief of staff of the U.S. Air Force from 1953 to 1957, called the Boeing B-52 “the long rifle of the air age” shortly after it entered service on June 29, 1955, no one imagined that the eight-engine, 390,000-

That’s astounding longevity for any vehicle, particularly a weapon with an expected service life of just a few years, whose origins date back to the years immediately following World War Two.

have both served as Stratofortress aircrew. Since the last months of the Vietnam War, the B-52 community has affectionately referred to the big bomber as the “BUFF” (Big Ugly Fat Fellow); that conflict marked the first use of the BUFF in combat. Since

pound bomber would still be operational 60 years later.

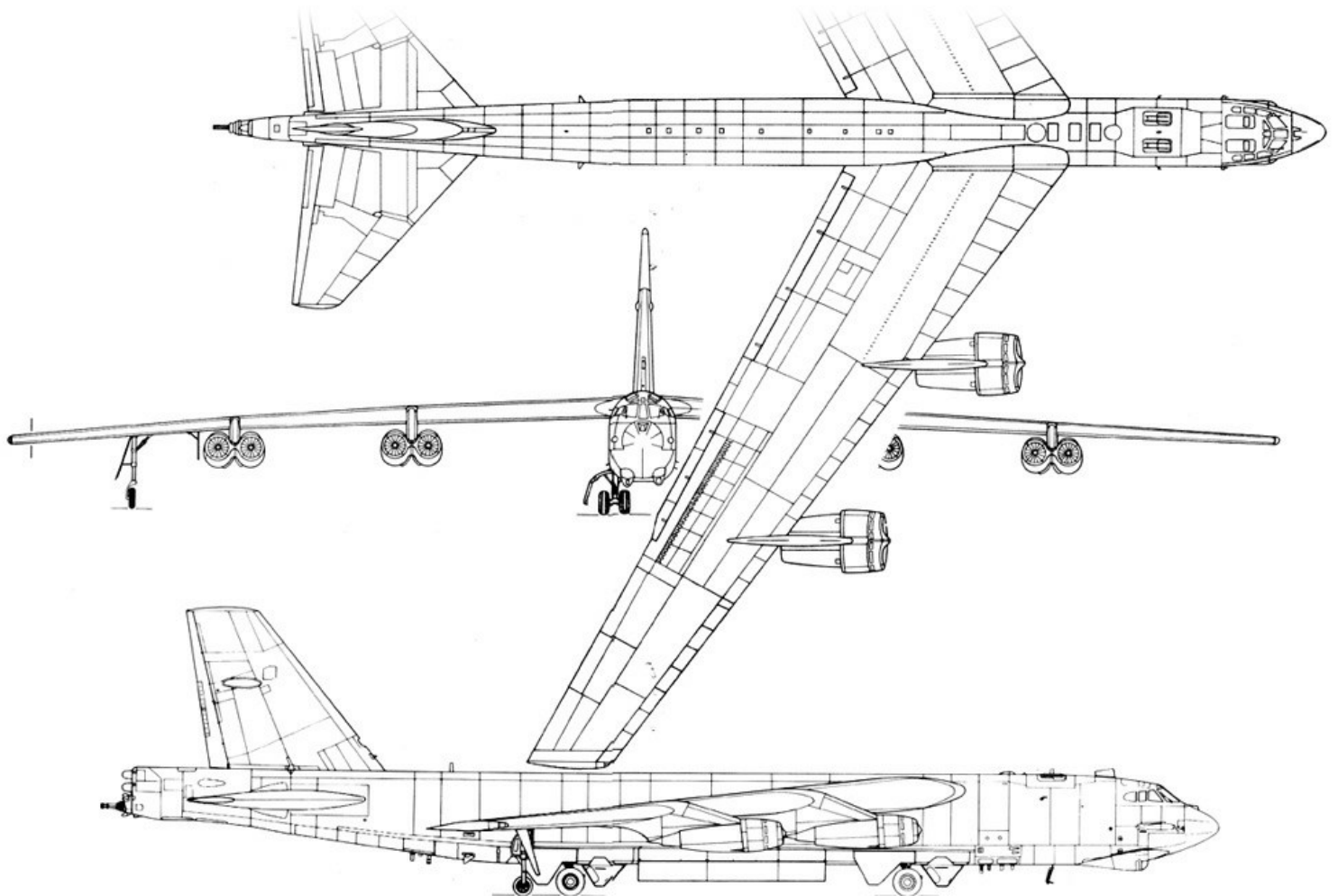
Had he a crystal ball, General Twining would have been able to add that the nation's new "long rifle" would go on to become the longest-serving military aircraft in American history. Continually upgraded, modified and adapted to new missions, the amazing B-52 is far from being finished after six decades; in fact, [the Air Force plans to fly it until 2040](#).

Employed as a high-altitude nuclear delivery vehicle, low-level penetrator (to evade surface-to-air missiles), conventional bomber, flight test asset and [foil for popular music](#), the Stratofortress is a military and cultural fixture.

The saying "the last B-52 pilot has yet to born" may no longer hold true, but there are still plenty of grandfathers and grandsons — and in at least one case, *three generations* of a single family — who

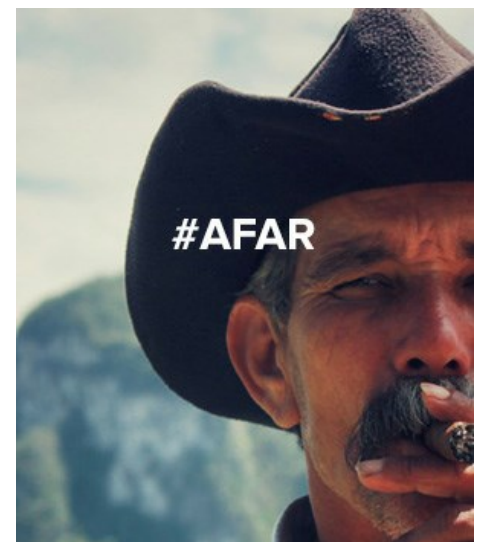
then, the B-52 has been engaged in nearly every action the U.S. has entered, from Desert Storm and Operation Allied Force (Kosovo) to operations Enduring Freedom (Afghanistan) and Iraqi Freedom.

Thankfully, it has never been called upon to fulfill the role for which it was originally intended: an intercontinental, high-altitude nuclear bomber.



In 1940, it was feared that England might fall to the Nazis, and the USAAC called for designs for a weapon with transatlantic range to continue the fight against the Axis; Convair's gigantic B-36 "Peacemaker", first fielded in 1948, was the answer to that call. Ironically, rapid advances in technology, including the emergence of high-speed and high-altitude jet fighters, made the newly operational Peacemaker obsolete. But an outline for the B-36's replacement had already been issued, calling for a bomber with an unrefueled range of 8,000 miles

performance was only slightly better than that of the Peacemaker. The end of 1948 saw advances in jet engine development and aerial refueling, and, on a visit to Wright-Patterson Air Force Base on Thursday October 21, 1948, the Air Force asked the B-54 design team to consider the possibility of a pure-jet heavy bomber. So the design team closeted itself in a hotel in Dayton, Ohio that weekend, and on Monday the 25th, presented the Air Force with the design that would make its first flight just over three years later as the YB-



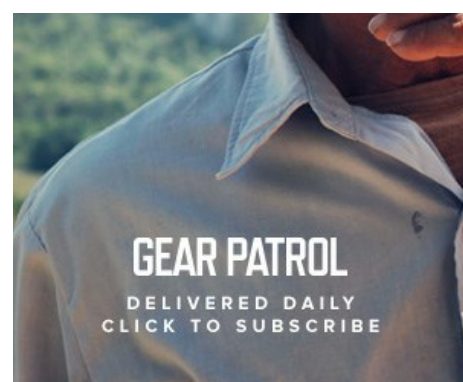


with a 10,000-pound bomb load and a top speed of 450 mph. The Peacemaker already carried much more (up to 86,000 pounds with the B-36D) and nearly met the range requirement; but it wasn't fast enough to evade attackers or reach targets quickly.

Boeing responded with a large, straight-wing turboprop design, the B-54, but its

52.

The futuristic airplane was a huge advance over previous heavy bombers, incorporating many of the engineering features Boeing's radical B-47 Stratojet medium bomber had only just pioneered: the 160-foot-long B-52 was a swept-wing, long-range (upgraded models could exceed 8,800 miles unrefueled), high-speed hammer.



Eight Pratt & Whitney J57 turbojets were pylon mounted on the B-52's 185-foot wingspan. These were developed especially for the BUFF, capable of producing more than 11,000 pound of thrust (initially) and propelling the bomber to 650 mph in level flight. They also provided enough power to haul combined internal and (later) external loads as heavy as 70,000 pounds. Six men were required to operate the fearsome new jet: a pilot, copilot, radar navigator (bombardier), navigator, electronic warfare officer and tail gunner (eliminated in 1991, with the

June 1955 as the B-52B, Boeing already had more advanced variants under development, including the C, D, E and F models that were to form the core of Strategic Air Command's (SAC) nuclear bomber force through the early 1960s.

Beginning in 1958, nuclear-armed SAC B-52s flew "airborne alert" to ensure the safety of a response team in the event that the U.S. was caught off guard by enemy attack. BUFF crews remained aloft 24-7 on flights as long as 26 hours, supported by multiple aerial refuelings; similar flights

delivered over 15,000 tons of bombs across 11 days; this intensive action, in addition to General William C. Westmoreland's saturation strikes throughout the remainder of war, is credited with bringing the North Vietnamese to the negotiating table to end conflict.

By that point, longer-ranged and more powerful "second-generation" B-52Gs and B-52Hs had been operational for 11 years, adapted to utilize a wide variety of stand-off missiles as well as conventional bombs. Both munitions were employed by the B-52



removal of the tail gun).

Together they could deliver a nuclear knockout the likes of which had never been imagined. Later versions, including those now in service, could punch harder and more precisely with conventional weapons. By the time the BUFF made its operational debut in

occurred during the 1962 Cuban Missile Crisis to prevent the escalation of the superpower stand-off.

It wasn't until June 1965 that B-52s were first used as conventional bombers, during the Arc Light bombing campaign in Vietnam. Then, during Operation Linebacker II in December 1972, B-52s

during Operation Desert Storm in 1991, wherein BUFFs flew 1,741 sorties and delivered more than 27,000 tons of bombs.

B-52 crews finally stood down on September 27, 1991 after 36 years on nuclear alert, and by May 1992 all variants had been retired except for the B-52H, which remains in service. B-52Hs

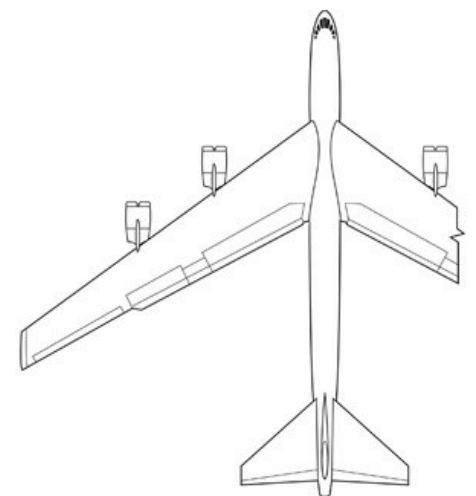


participated in the opening strikes in Afghanistan in 2001 and Iraq in 2003 and continue to fly close-air support missions alongside the much younger B-1B Lancer and B-2 Spirit.

Altogether, 744 B-52s have been produced, and while the youngest B-52 in service was built in 1962, modernization continues today with the Combat Network Communications Technology (CONNECT) upgrade, a digital architecture including

display screens, computer network servers and real-time beyond-line-of-sight communication links, allowing crews to stay connected to the world throughout their mission. CONECT upgrades to the remaining 76 B-52Hs are expected to be complete by 2020; later that decade, the newly outfitted BUFFs will fly alongside their eventual replacement: the Long-Range Strike-Bomber.

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