



JUNE IN AVIATION HISTORY

THE FALL OF THE VALKYRIE

The Cold War was ripe with innovative and creative weapon designs and development. The strategic objective and efforts of weapons development was emphasized by the need to deter the enemy. After all, that was the main goal all superpowers during this era. Mad men were the world's geniuses and their ideas weren't necessarily seen as that outside the box at the time. This was where creations that could damn the entire existence of man were created. However, there were many more conventional ideas and designs during the era. Chief among them was weapon delivery systems; aircraft and simple ballistic missiles. One such system was known colloquially as "The Valkyrie Family."

Developed by the aviation company responsible for the wildly successful and well-known P-51 *Mustang*, the North American Aviation Corporation found itself going all in on a weapons platform that would meet all the needs of the U.S. Air Force in the 1950s. The mission was to find a replacement for the B-52 *Stratofortress*.¹ Trickle-down innovation from the design could then be used in other aircraft designs, such as fighters and attack aircraft. The resulting proposal was the XB-70 *Valkyrie*, and the program reached over two airframes and consisted of over seven proposed mission sets during its lifetime from 1955 to 1979.

The XB-70 *Valkyrie* was a unique aircraft that grew out of the WS-110 design concept, which was a unique design in of itself. The large aircraft featured a wingspan that was equal to the length of its center fuselage and featured forward-swept wings with two external fuel tanks. The nose was extended beyond the canopy with a delta shaped canard that framed the entire nosecone.² By 1961, this design had changed dramatically—as they tend to do. The

XB-70 instead was a "great white bird", that featured a slender body that tapered to two large delta-shaped wings. The wing-tips were foldable to aid with drag and stability. It featured two vertical stabilizers and was powered by six large General Electric turbojet engines capable of 28,000 lbs of thrust each.

Throughout the early 1960s the aircraft flew in a series of tests, but was largely hindered by funding issues and problems with stability and control.³ The XB-70 required supercomputers that were specially designed in addition to the pilot to stay in level flight, and misconfiguration led to significant control issues or unresponsiveness in flight. Other competing aircraft, such as the B-58 *Hustler* (in spite of it being a predecessor), were also creating issues with their rapid deployability and rapid response. The XB-70 proceeded through a numerous amount of potential uses, competing with aircraft such as the A-12 *Oxcart* and the later SR-71 *Blackbird* for a potential RB-70 role. A small version of the aircraft was proposed, designated the XF-108 which featured a carrier-launch-capable version which eventually became the A-5 *Vigilante*, however the XF-108 itself was never produced. Still, North American attempted to salvage the aircraft despite the budget for the aircraft being reduced to being only able to sustain two being built.

This number was reduced to one, however, after tragedy struck the program in 1966. On 8 JUN, a formation of aircraft launched to accompany the XB-70 Ship number 2 for a photoshoot. General Electric had requested the flight to capture photos of the aircraft in flight with the YJ93 turbojet engines. The formation consisted of an F-4 *Phantom II*, an F-5 *Tiger II*, a T-38 *Talon*, and an F-104 *Starfighter*. The flight path led the formation into southwest California when an incident

occurred between the F-104 and the XB-70. NASA CTP Joe Welker's F-104 drifted into the XB-70's right wingtip causing the *Starfighter* to flip and roll across the top of the XB-70. In the process, it ripped one of the vertical stabilizers and part of the left wing off the *Valkyrie* before exploding in mid-air. After attempting to regain control, the XB-70 entered an uncontrollable spin before crashing to the ground near Barstow, California. Both the pilot of the F-104 and co-pilot of the XB-70 (Carl Cross) were killed in the incident, while the XB-70's pilot (Al White) was able to eject. However, he sustained severe injuries in the process, generally by the design of the escape capsule.⁴

In the aftermath of the crash, the Air Force pointed to wake-turbulence generated by the right wing of the XB-70 that caused the F-104 to drift as it did. It also indicated that there was no good way for the F-104 pilot to have known how close he was to the XB-70. Thus, the incident was labeled to have no relationship with pilot error. The program remained active up until 1969 when Ship 1 was grounded permanently and finally sent to the National Museum of the United States Air Force in Dayton, Ohio. The XF-108 mockup was destroyed, and the A-5 *Vigilante* slowly began to be phased out until its total replacement in 1979, mostly by F-111 *Aardvark*'s.

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- Jenkins, Dennis R.; Landis, Tony R. North American XB-70A *Valkyrie*. *Warbird Tech*. Volume 34. Specialty Press, North Branch, Minnesota. 2002. pp 14-15.
- Kennedy, John F. "Remarks of Senator John F. Kennedy, Horton Plaza, San Diego California, 2 NOV 1960." *1961 Budget Message*. Kennedy Archives. 28 MAR 1961. pp. 1-38.
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1943 The "Tuskegee Airmen" fly their first combat mission against Axis forces during an operation near Tunisia.

1946 Three modified F6F-5 *Hellcats* perform over Jacksonville, Florida - the first flight for the U.S. Navy Blue Angels.

1948 A Northrop YB-49 "flying-wing" crashes while conducting stall recovery tests near modern Edwards AFB.

1950 B-29 and B-26 bombers strike rail lines being used by the North Koreans, the first U.S. air strikes of the war.

1981 The F-117 *Nighthawk* takes flight for the first time in the Tonopah Test Range, Nevada.

