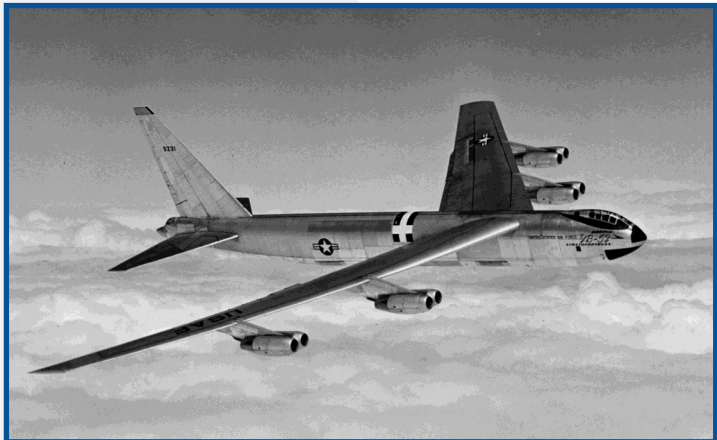


## ***Boeing B-52 Stratofortress Performance Enhancement- 1950***

*By: Tony R. Landis*

The Boeing B-52 Stratofortress has been the backbone of U.S. Air Force Strategic deterrence since it became operational in 1955. Keeping this old workhorse up to date with the latest technology has been a priority for



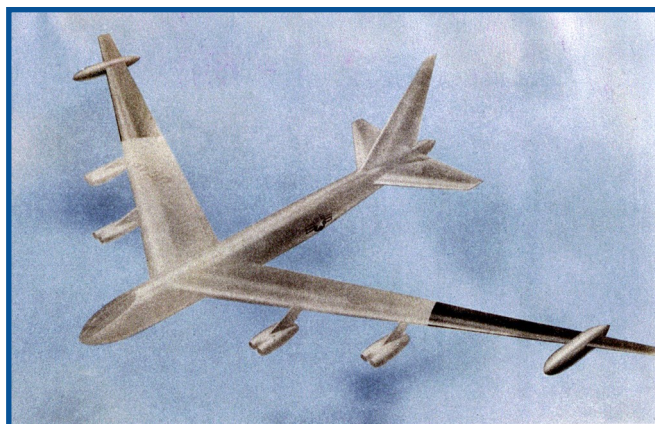
the Air Force and Boeing. The contractor put every variant of the B-52 through an extensive loads and fatigue life program before they entered service as they expected the aircraft to fly well into the 1970's, as one report stated.

In 1950, two years before the first XB-52 prototype took to the air, Boeing was already looking into the future, proposing various modifications to improve the performance of their new bomber design. These

early modifications are based off Boeing Model 464-100, known to the Air Force as the YB-52. In addition to the airframe modifications, Boeing investigated the use of the latest turbojet engine designs such as the Pratt & Whitney JT3A/J57-P, Westinghouse X40-E9/J40-WE-14 and the Wright Aeronautical TJ14/J59-W.

Increasing the unrefueled range of the aircraft became the priority. To solve this, Boeing proposed the use of extended wing tips with external fuel tanks. The increased wing area and extra fuel reduced the combat altitude by 5 percent and increased range by 26 percent. A second design added 4 external fuel tanks under the wing and a single tank to each wing tip.

Since turbojet engines were in their infancy at the time, Boeing investigated the use of turboprop engines from Pratt & Whitney (Advanced J57), Wright Aeronautical (GT-18) and General Electric (X-16) as an alternative.



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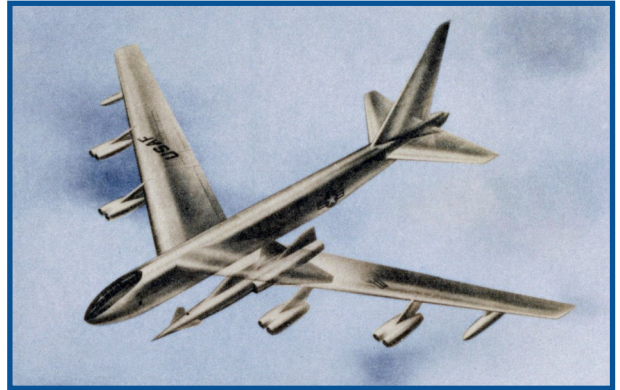
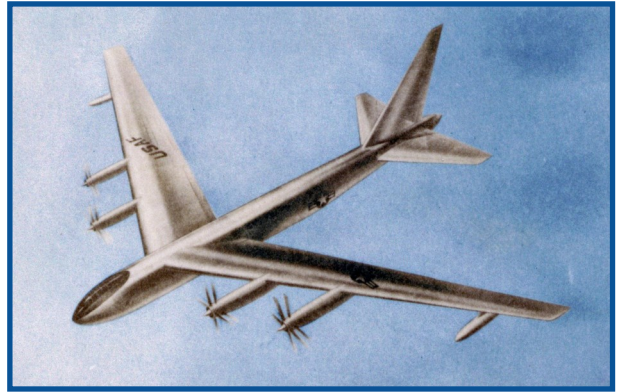
# **HISTORY**

**IN TWO**

Switching from turbojet to turboprop propulsion showed the most promise for extending range with a 45 to 50 percent increase in range and moderate increase in combat altitude. The use of counter-rotating propellers added complexity to the overall design.

One feature that did carry forward to future variants was the use of the bomber to carry external cruise missiles under the wing. While the B-52 never carried an SM-64 Navaho as shown in the illustration at right, the bomber did go on to carry the GAM-86 Skybolt, AGM-28 Hound Dog, AGM-86 Air Launched Cruise Missile (ALCM) and AGM-129 Advanced Cruise Missile to name a few.

It is this kind of forward thinking from Boeing and Air Force engineers that have kept the B-52 a relevant platform for the last 70 years, and with continuous improvements and upgrades, the aircraft is now expected to be in operational service through 2050.



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