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A Tale Of Two Dragons
by Ed Rusinek

*North American Aviation designed two very exceptional bombers, the **B-21** and the **B-28**, which never advanced beyond the prototype stage. Both were given the informal name of **Dragon**. This is their story...*

North American Aviation XB-21 "*Dragon*"

In August 1934, the U.S .Army Air Corps issued Circular Proposal 35-26 for a multi-engine heavy bomber to replace the Martin B-10. First to respond was Douglas Aircraft with the B-18 "*Bolo*" heavy bomber.

Based on the more stringent requirements defined by the subsequent Circular Proposal 36-528, NAA issued General Order NA-21 and began work in January 1936 using solely company funds with no commitment or backing from the government. It was the first bomber and multi-engine project undertaken by NAA.

The prototype NA-21 was completed and test flown for its maiden flight at Mines Field on December 22, 1936 with test pilots D.W. "*Tommy*" Tomlinson and Alex Burton at the controls. During the flight, several difficulties were encountered with tail buffeting and engine overheating. After the incorporation of some modifications, the aircraft was redesignated as Model No. NA-39, accepted by the US Army Air Corps as the XB-21, assigned Aircraft Serial No. 38-485 and given the name "*Dragon*".

Powered by two Pratt &Whitney R-2180-1 Twin Hornet radial engines equipped with F-10 turbo-superchargers and rated at 1,200 hp for take off, the aircraft had a cruising speed of 190 mph with a service ceiling of 25,000 ft and capability of reaching 40,000 feet with the crew sustained by an oxygen system. Of all metal construction, the mid-wing monoplane carried a crew of six and was armed with five .30-caliber machine guns. The maximum range was 3,100 miles, reduced to 1,960 miles with 2,200 pounds of bombs and to 660 miles with 10,000 pounds of bombs.

When tested at Wright Field, the aircraft exceeded performance expectations and appeared to win the competition with the Douglas B-18A for a production order. Price, however, was the determining factor. North American Aviation priced the aircraft at $122,600 each, whereas Douglas was asking only $63,977 per airplane. Douglas was awarded a production contract for 177 B-18As on June 10, 1937. No further XB-21s were built.

Photo courtesy of the Boeing History Archives Office
The NA-21 with supercharger ducting relocated to the through sides of the engines and the actual turrets installed became the NA-39 and was designated the XB-21.

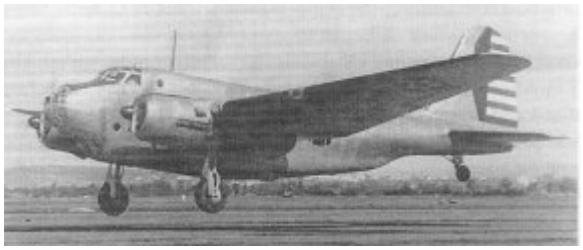

Photo from the NAA Retiree Bulletin Files
The XB-21 taking off with actual turrets and new propeller spinners. Although the mid-wing design provided carry-through structure forming the top of a large bomb bay, external horizontal struts (not visible in photo) were installed between the nacelles and the fuselage in front of the wings.

Prototype NA-39 was returned to NAA in Inglewood. However, in 1939, the USAAC purchased the airplane for $555,000 and reassigned it to Wright Field where it was used in a variety of tests. Ironically, the name "*Dragon*" was reassigned to the Douglas B-23, a development of the B-18.

"Dutch" Kindelberger, convinced that North American Aviation had the capability to build a superior twin-engine bomber, initiated the development of Model Number NA-40. A twin-engined, twin-tailed medium bomber, the NA-40 prototype was built in 1938 and flew successfully for the first time on February 10, 1939 with test pilot Paul Balfour at the controls. Provided with more powerful engines, the airplane fared even better during the evaluation trials. Incorporating some changes, the aircraft was redesignated as Model Number NA-62. On September 20,1939, the USAAC: placed an order for 184 planes at a cost of $63,970. each. The plane was designated as the B-25. It was first flown on August 19, 1940. The B-25 differed in design with a lower wing, a redesigned slimmer fuselage and two 1,700 hp R-2600-9 engines.

North American Aviation XB-28 "Dragon"

Only two months after work began on the B-25, the USAAC issued an additional contract with NAA on November 15, 1939 for the prototype of an advanced twin-engine, high altitude medium bomber. The fourth venture by the company into the twin-engine bomber design, the capabilities specified for the XB-28 went far beyond any previously defined for medium bombers.

Issuing General Order NA-63, the company began work on the first of two prototypes, Aircraft Serial No. 40-3056. The airplane was given the informal name of *Dragon*. Two Pratt & Whitney R-2800 engines with General Electric superchargers carried the airplane to an altitude of 35,000 ft. The circular fuselage accommodated a crew of five in a pressurized forward section that maintained the pressure equivalent of 8,000 ft up to an altitude of 30,000 ft. The bomb bay was adaptable to carry from twenty 100-pound bombs to two 2,000-pound bombs and could be reconfigured to carry a long range fuel tank for ferrying.

Photo courtesy of the Boeing History Archives Office, The circular pressurized fuselage of the XB-28 appears small when compared to the nacelles for the, awaiting 2,000 hp R-2800 engines

Defensive armament far exceeded that of the early B-25s, consisting of two .50-caliber machine guns in each of three remote-controlled, power-operated turrets designed and built by NAA. Periscopes and scanning devices enabled gunners to spot and track incoming attackers.

The maiden flight of the XB-28 occurred on April 24, 1942 from Mines Field with test pilots Ed Virgin and Joe Barton at the controls. To their delight, the airplane performed exceptionally well at all altitudes.

The airplane had a cruising speed of 255 mph with maximum speed at 373 mph. The service ceiling was 34,600 ft with a range of 2,040 miles carrying a 600-lb bomb load.

A second and lighter version of the airplane was ordered on January 12, 1940: the XB-28A, General Order NA-67. The airplane, Aircraft Serial No. 40-3058,was completed in early 1943. Assigned a reconnaissance role, the turrets were replaced with General Electric turrets and a four-camera photo-mapping installation was added behind the bomb bay. On April 24, 1943— just one year since the first flight of the XB-28, Ed Virgin and Joe Barton completed the first flight of the XB-28A.

Photo courtesy of the Boeing History Archives Office The XB-28, painted olive drab and gray, awaiting further/light tests at Wright Field, Ohio.

Tested very intensely, on August 4,1943,test pilot Bob Chilton and flight test engineer Roy Ferren flew the XB-28A up the California coast. In a dive to build up speed, they encountered violent tail shaking accompanied by a roll to the left. The airplane could not be controlled and both men had to bail out! As Ferren jumped from the aft hatch and passed under the airplane, he noticed that the vertical tail was bent about 45° to the left. Both men were safely retrieved, but the aircraft plunged into the Pacific Ocean.

Although the B-28 had been fully engineered for production, General Order NA-89, the USAAC decided that the B-25 fully met all future requirements for a medium bomber and there was no need for a high altitude medium bomber. The contract for the B-28 "*Dragon* " was cancelled, however, much of the technical knowledge gained in the design of the pressurized crew cabin was transferred to the design of the Boeing B-29. Thus ended the tale of the two NAA Dragons.

From the author: When I was researching the material for this article, to my surprise, there seemed to he considerable information available including a long treatise in Polish. Although each suggested an individual slant, they all centered on the information provided in the book: ***North American Aircraft 1934-1998 Volume 1*** *by Norm Avery. I gathered a composite of all this data and I was tempted to put Norm down as the co-author; but I knew, in his generosity, he would let me "solo". Ed*