April 13, 2020

Budd Conestoga RB-1 - Stainless Steel Military Cargo Aircraft

During World War II, the Budd Manufacturing Company of Philadelphia designed and built an all stainless-steel cargo aircraft for the U.S. Navy. The request from the War Department in 1942 was based on an anticipated shortage of aluminum, the material used for aircraft construction due to its light weight.

Photo, Edward Budd.

Edward Budd founded Budd Manufacturing in 1912. Budd's breakthrough occurred in 1913 when the Dodge Brothers ordered a large quantity of the first all-steel automobile bodies. A few years later Budd started to produce wire-spoked automobile wheels to replace the wooden-spoked wheels.

Beginning in the 1930's, Budd was a major producer of stainless-steel body railroad cars for passenger trains. A famous example was the Pioneer Zephyr, a diesel-powered trainset built by the Budd Company in 1934 for the Chicago, Burlington and Quincy Railroad (CB&Q). Budd Manufacturing developed skills in fabricating stainless steel bodies. Budd's engineering department developed a technique called shotwelding. This method was used to join stainless-steel body sections, without degrading the metallurgical characteristics of the material.

In 1931, the company explored the idea of building an aircraft with a stainless-steel body. The Pioneer BB-1 aircraft was a 4-seat amphibious bi-plane. The design was built under license from the Italian company Savoia-

Marchetti. Only one was built and it performed successfully for several years. The BB-1 is on display outside the Franklin Institute in Philadelphia.

Budd won a Navy contract in 1942 for the design of a stainless-steel cargo aircraft. The specification of stainless steel rather than aluminum was based on a possible shortage of aluminum during the war. This aircraft was intended to deliver supplies to Navy units near the front lines. The aircraft was required to have a large cargo space, and to land and takeoff on short and unfinished runways. After the Army expressed interest, the total order was for 1,000 aircraft.

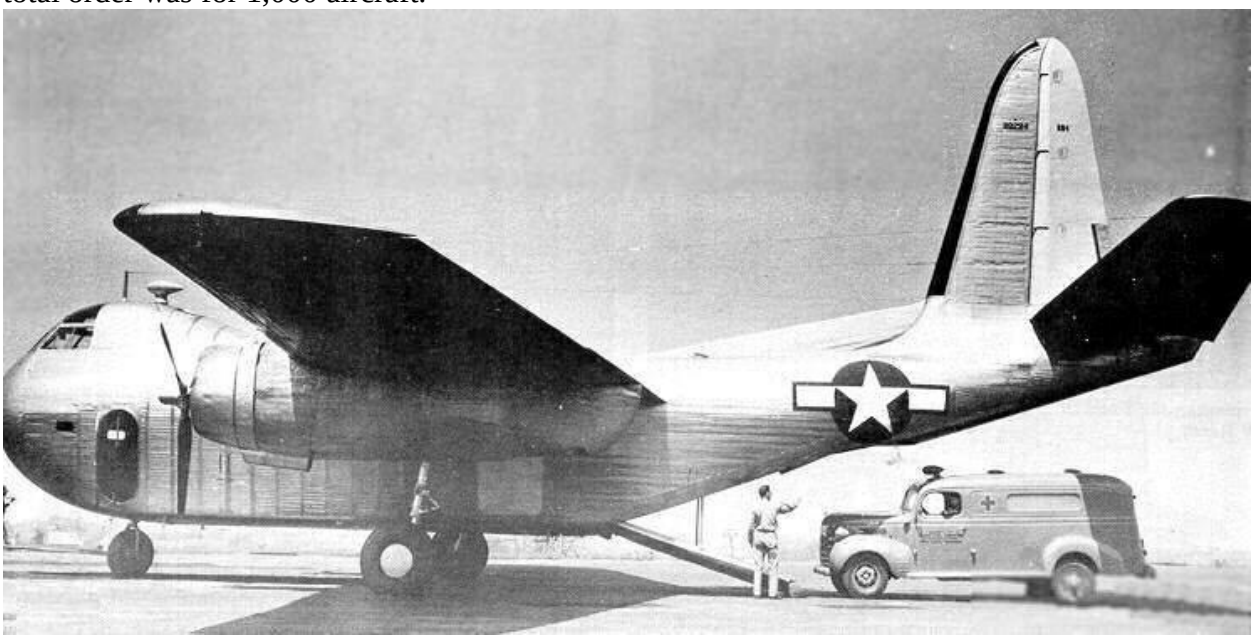

Photo of a RB-1 Conestoga.

In October 1943, the first aircraft, named the RB-1 Conestoga, was successfully flown. The first production model was delivered to the Navy in March 1944. Since the military was already starting to reduce orders for military hardware, the order was cancelled, except for 25 Conestoga's to be delivered to the Navy.

Photo of RB-1 Conestoga in flight.

The RB-1 had unique design features. All of these features can be seen in the Lockheed C-130 transport which entered military service in the 1950's. The wing was high, above the fuselage. The spacious cockpit was located high above the nose of the aircraft. This feature enabled the cargo area to run the full length of the aircraft. Additionally, RB-1 had a rear loading ramp for easy loading and unloading of cargo. The loading ramp could be used to drive vehicles into the cargo area.

The 25 Conestoga's did not see military service during the war. The aircraft were sent to military war surplus. In 1945, a startup air freight airline purchased 14 of the Conestoga's as their first aircraft. The airline, called the Flying Tiger Line, was started by pilots who served in the American Volunteer Group (AVG). The AVG served in China, helping the Chinese government in the fight against the Japanese military. The Flying Tiger Line flew the Conestoga's for 3 years before upgrading to newer aircraft.

A surviving Conestoga is on display at the Pima Air & Space Museum in Tucson, Arizona.