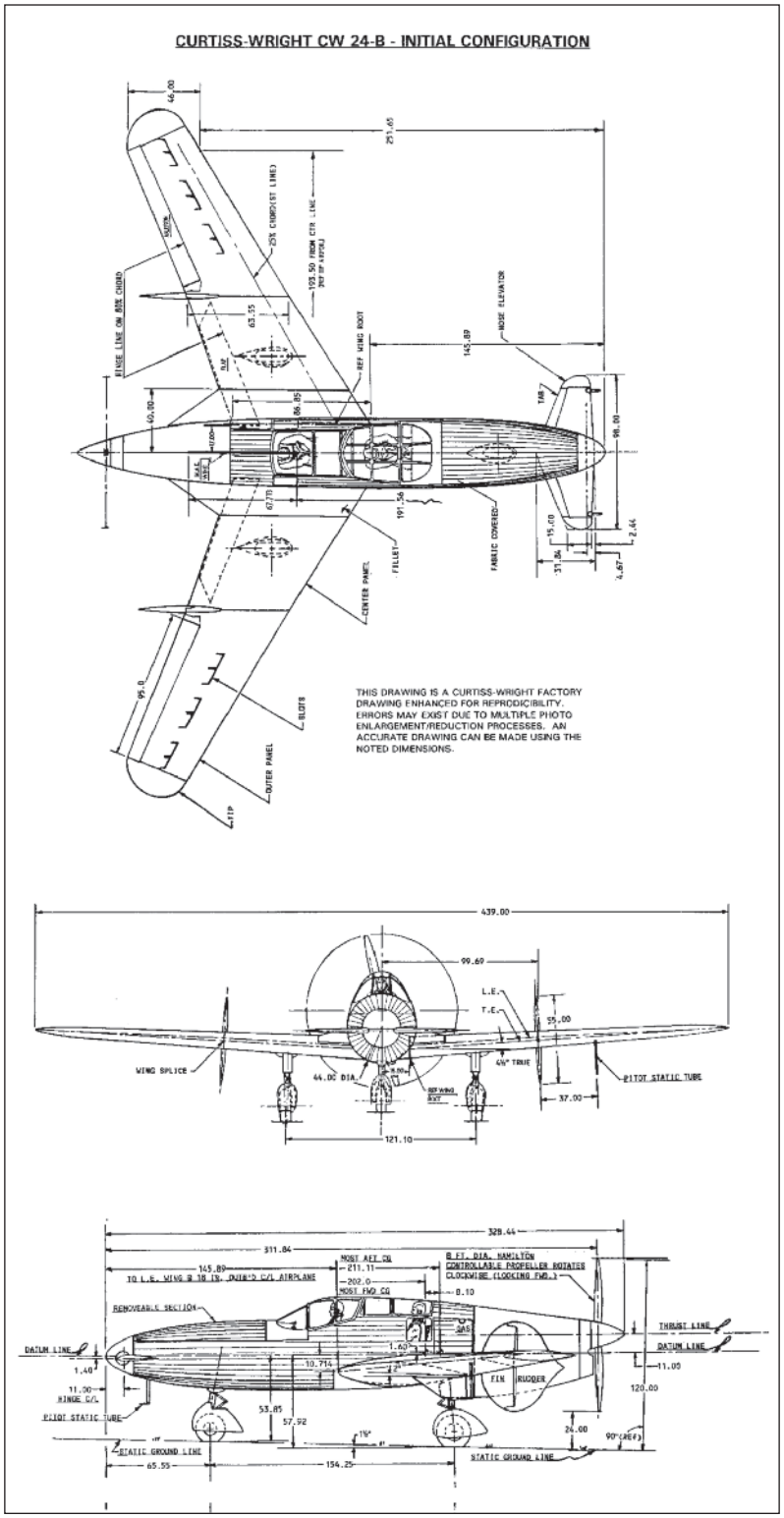
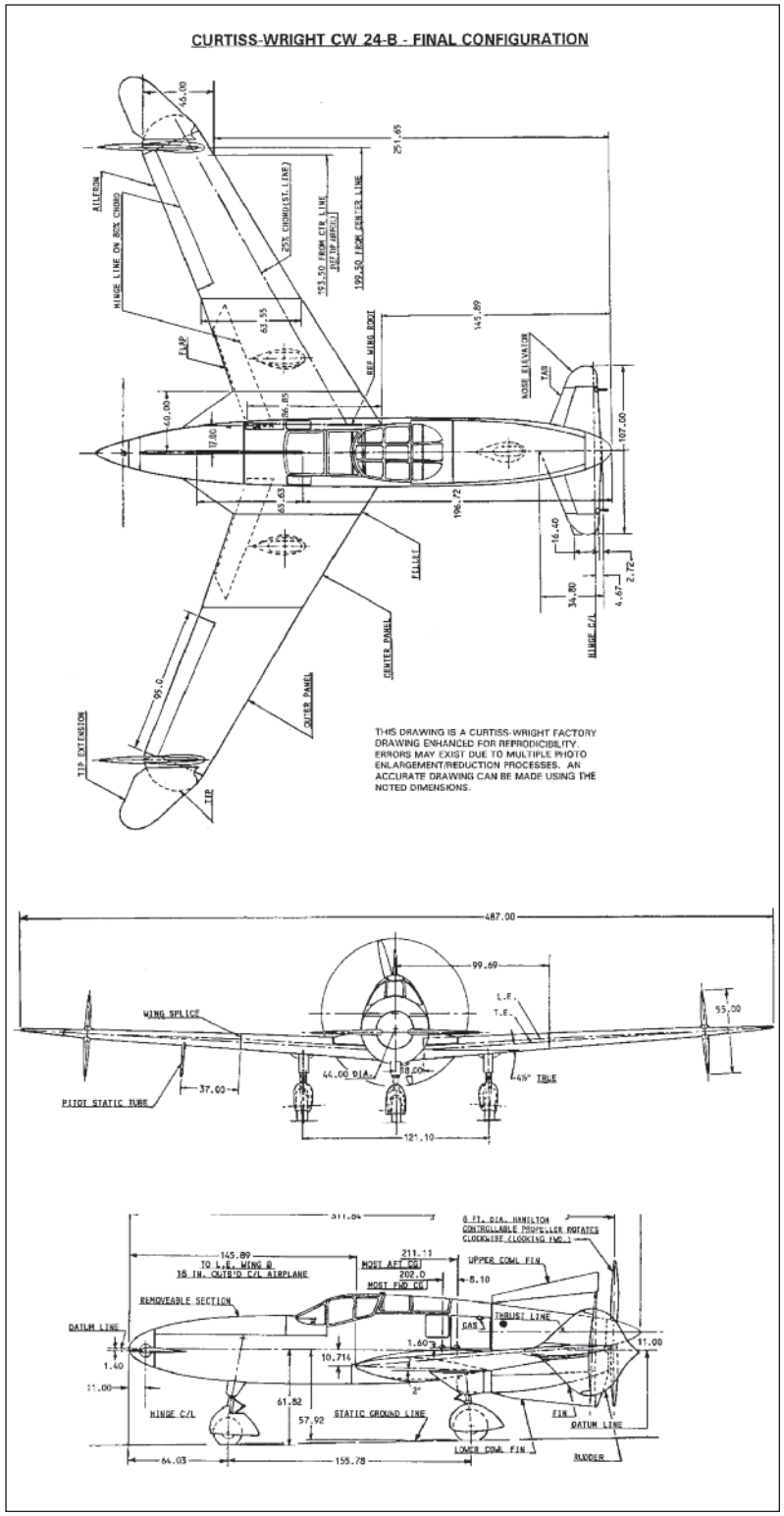


The original configuration of the Curtiss CW24-B shows an exceptionally clean airframe design (disregarding the fixed landing gear of course); construction features were a welded steel tube, fabric covered fuselage, and wooden plywood covered wing. (E. M. "Bud" Flesh)



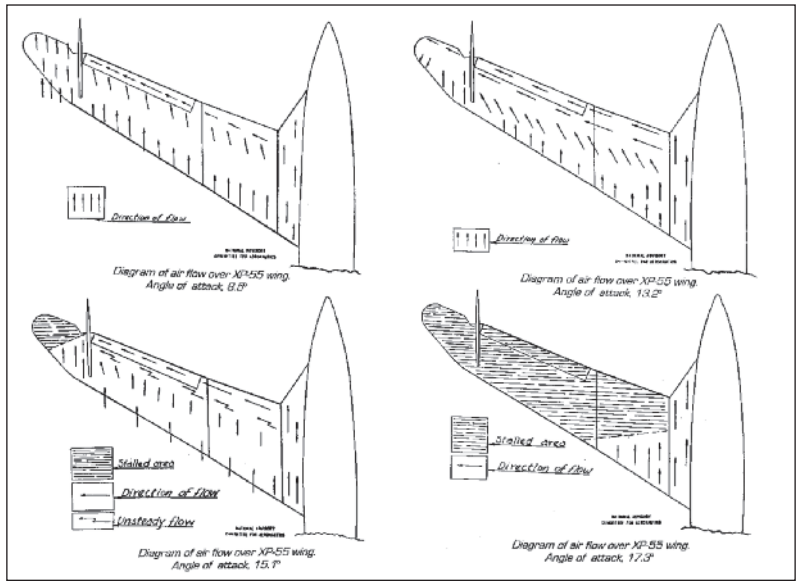
The final configuration of the CW24-B as the result of flight-testing featured the addition of dorsal and ventral fins, extended wingtips, a longer span elevator, and the placement of the fins and rudders on the wingtips. (E. M. "Bud" Flesh)

the center of gravity, extending the flaps, or a freely rotating propeller had little effect on spin characteristics. Inverted spin characteristics, with the ailerons set neutral, were noted to be generally similar to those of erect spins. The tests indicated that the spin model was unable to regain normal flight attitudes from a spin through the use of controls alone. Analysis of the results of these tests noted that the rate of spin rotation of the model was considerably slower than in spins of contemporary, conventional types of airplanes. One of the significant objectives of the flight test program for the CW24-B when completed was the improvement of spin characteristics.

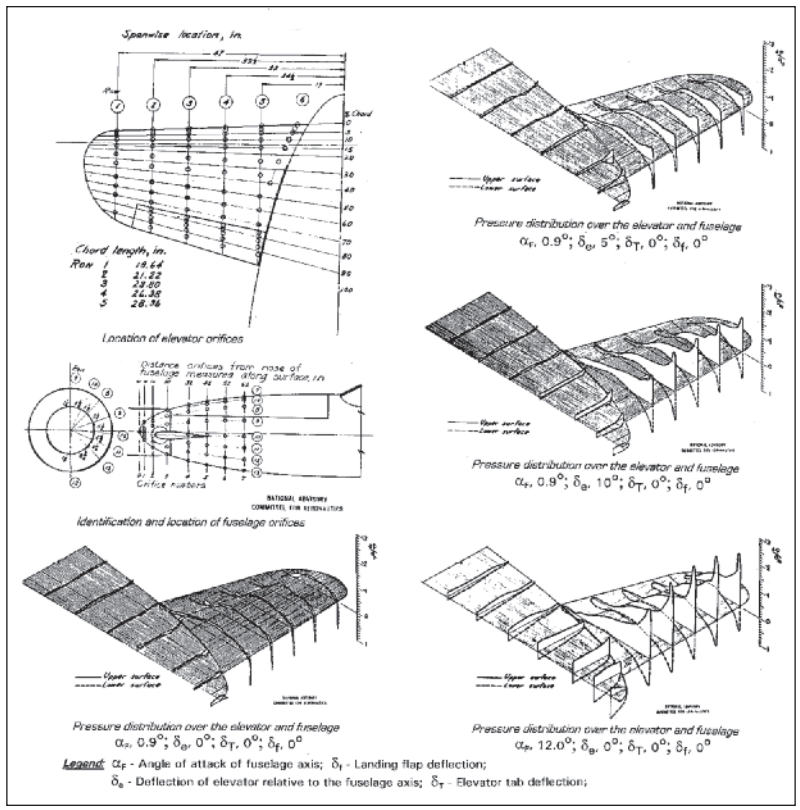
When the construction of the flying model was almost complete, the Army Air Forces decided to sponsor the project again. Sponsorship covered essentially the work outlined in a Curtiss-Wright proposal originally submitted to the Air Corps in May 1941, for the building and flight-testing of the flying scale model. Procurement action for the flying model began with the initiation of AFP No. 182443, dated 29 September 1941, which resulted in Contract W535 ac-22239, approved 28 November 1941,[12] with serial number 42-39347 assigned to the CW24-B.[13]

For reasons of security it was considered necessary that flight-testing of the CW24-B should be conducted at some remote location. The Air Corps, in cooperation with Curtiss-Wright, concluded that the Muroc Bombing and Gunnery Range in California (later changed to Muroc Army Air Base 23 July 1942) was the best location to conduct these flight tests. Curtiss-Wright assembled a complete organization consisting of pilot, clerical, commissary, engineering, service, and inspection personnel to live in the camp erected at the site of the tests. Following the completion of the flying model, and engine run-up tests at the Curtiss-Wright St. Louis plant, the CW24-B was shipped to the California test location on 4 November 1941 and prepared for the flight test program. First flight was made on 2 December 1941, with Curtiss Chief Test Pilot H. Lloyd Child at the controls. With its limited power, performance was not very good, but was sufficient to demonstrate configuration feasibility.

The test program consisted essentially of two phases; the first phase being an initial test period during which a number of modifications to the CW24-B were anticipated to achieve optimum flying qualities. At this time the length of the nose wheel strut made the ground incidence angle of the wing plus-one-half-degree.[14] Preliminary high-speed taxi tests brought out a very important design consideration for the XP-55 configuration, which had no longitudinal control surface in the propeller slipstream. With the wing incidence at or near zero lift during the takeoff ground roll, considerable airspeed had to be attained to provide enough lift from the elevator to overcome the entire weight-moment of the airplane about the main wheels before the nose could be lifted. When sufficient speed was attained to raise the nose, the increased angle of attack of the wing resulted in a sudden increase in lift, thus reducing the lift required from the elevator to maintain the nose at a given height. As a result, if the pilot maintained a constant elevator position during takeoff, there was a tendency to produce an undesirable "jump" takeoff. Solution of the problem required the establishment of the



The Curtiss CW24-B was tested in Langley's 30-by-60-foot full-scale wind tunnel. As shown, span-wise airflow was encountered at low angles of attack, a phenomenon that would plague all future swept wing aircraft designs. (Author's Collection)



Air pressure distribution tests were made on the fuselage nose – elevator configuration of the CW24-B in the Langley full-scale wind tunnel. Recorded data did not give any indication of the adverse stall characteristics demonstrated by the XP-55. (Author's Collection)