



THE BRIEGLEB TWO-PLACE SAILPLANE

THE MODEL BG 8 two-place sailplane received its type certificate December, 1942. After several years of development, the first of this type was completed in March, 1942. The flight tests were begun in March of that year and shortly thereafter an experimental contract was received from the Army Air Forces. The static tests were carried on by Aero Industries Technical Institute, and since this ship is an all-wood sailplane it was necessary to proof-test the entire structure. All static tests were run in accordance with the latest C. A. A. requirements and the ship came through with flying colors. Upon completion of the tests and ground inspection by the C. A. A. the ship was taken to Manzanar, California, for final flight tests. This is outside the 150-mile defense zone and was found to be a very poor testing ground due to its proximity to the High Sierras. Severe turbulent air conditions were encountered which later resulted in the loss of the prototype glider. Most difficult of the tests was the "control free recovery" spin test. In this maneuver the sailplane is placed in a three-turn spin and upon completion of the three turns, the controls are released and the ship allowed to recover by itself. This is a necessary requirement for light planes and was placed on the proposed requirements for gliders in June of 1942. Most conventional gliders will undoubtedly meet this requirement, however, due to the cleanness of design, a sailplane will accelerate more rapidly than a conventional light plane which has the advantage of a propeller

acting as a brake. Under these conditions a sailplane is liable to reach its design speed before the pilot realizes his predicament. Moral: Higher design speeds!!

After two weeks of test flying for and with the C. A. A., the final spin tests were begun in the forward C. G. position. During the recovery of the last control free spin, severe turbulence was encountered causing the airspeed to increase 60% beyond the design air-speed. This was in the neighborhood of 160 m. p. h. Under these conditions the ship was slowed down by fish-tailing, but due to a sudden gust, severe loads were placed on the vertical surfaces with a resulting failure forward of the fin. Longitudinal and lateral control was still obtainable and the ship was slowed to approximately 70 m. p. h. when another gust jammed the rudder into the elevators, causing the ship to fall into a right-hand spiral dive. Efforts were made to recover from this condition but were not successful. It was then necessary for the author and the flight engineer to leave by way of the silken canopy.

Upon investigation of the crash it was discovered that the failure was not entirely due to the gusts encountered, but events preceding the final test flights showed that: (1) the glider had been damaged when its trailer had been rolled over by a strong wind and one of the joints in the aft part of the fuselage was damaged; (2) a forced landing in the desert resulting in a ground loop and damage to the fuselage skin. It is to be noted that this fuselage was the same fuselage which underwent the static tests to proof load conditions. From the above facts, it was obvious that a number of contributing factors lead to the failure.

The second model BG 8 was constructed and ready for flight testing by September. All parts of the C. A. A. requirements known as 283G were complied with and the following conditions were noted: Longitudinal and lateral stability, good; directional stability, fair; this was improved with the addition of slightly more fin area. Visibility excellent; take-off speed, 42 m. p. h. with gross load; landing speed, 38 m. p. h. gross load. All stabilities were investigated with both forward and rearward C. G. positions and were found satisfactory throughout the entire range from 29% to 42% of the MAC.

Conventional stick controls are provided in both cockpits. A large door at the rear cockpit and the standard BG type hatch for the front cockpit provide suitable exits. Spoilers of conventional type are included and connected with the landing brake. At the suggestion of the C. A. A. the operation of the spoiler handle control was changed to simulate the operation of closing the throttle on a power plane. This suggestion proved itself when several power pilots were instructed in the glider. A large red handle is provided on the