The Briegleb UTILITY BG-6

by Gus Briegleb

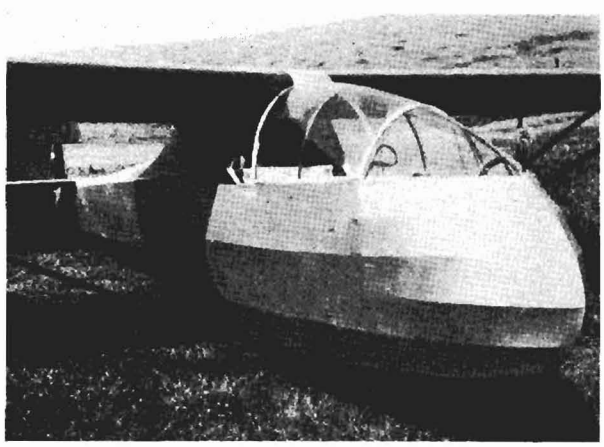
Since 1932, I have endeavored to design a utility to sell for about $400.00 complete, and less than $300.00 in kit form. While this goal has not yet been reached, I feel that we are very near it with our new model, "BG-6".

It was necessary to construct and redesign three other models before this one was completed. However, I have looked upon wing design and experimental work purely as a hobby and do not have to tack on a lot of overhead on this model. Construction is quite simple, and our present model was constructed, including a number of jigs and templates, in less than 600 man hours.

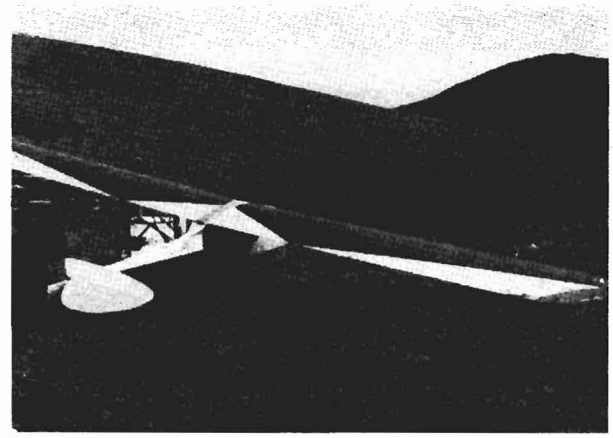
The BG-6 was finished two days before the Second Annual Western Soaring Contest and was flown Friday, April 7, at Metropolitan Airport, Van Nuys. I found the ship very stable and even with a full load, landed at 30 m.p.h. (auto check). In order to land this slowly, it was necessary to land with tail skid first. This is not a fault of the ship, but the fuselage is so designed with a low ground angle as to prevent a student from hopping or mushing the ship in the air. It will not leave the ground until an airspeed of 38 m.p.h. is reached. This is nine m.p.h. over the stalling speed, and, I feel, gives an extremely worthwhile safety feature.

The airfoil used is NACA 4412, and is very satisfactory, showing no tendency to fall off in stalled turns. Ample indication of a stall is given by a very noticeable "mush".

To date we have not spun the ship, but as soon as the stress analysis has been okayed by the C.A.A., an airplane tow permit will be obtained for these maneuvers.



Front View—Showing cabin.



Rear View—Showing low ground angle.

The BG-6 is entirely stress analyzed, and all the wing data submitted to the C.A.A. The fuselage and control details are complete and are being checked by our engineer, Mr. D. E. Walters.

As for soaring qualities, all that can be said is that when any soaring conditions existed at the contest, the BG-6 was being soared by Jack Ludowitz or myself. At times, Johnny Robinson's "Robin", the "Baby Albatrosses", and the BG-6 were the only ships on the ridge.

On the last flight of the contest on April 16, I made a flight to the valley, and, with sufficient altitude, stalled and dove the ship to check its stability. In the stalled condition, the ailerons were very effective, and the glider recovered immediately. With my weight, parachute, barograph, variometer, and extra instruments, the ship was slightly nose heavy, and its gliding speed, hands off, was 55 m.p.h. After stalling (25 indicated) and releasing the controls, the ship dove to 65 m.p.h. The nose then came up and we remained in a steady glide at 55 m.p.h. Next, I dove the ship to 70 m.p.h., and, upon releasing the controls, the nose came up and the airspeed again dropped to 55 m.p.h. At 38 to 44 m.p.h., the sink was 2.6 feet per second.

While doing these oscillations, I was extremely annoyed by the slight play in the stick—aileron bearing—since rectified. I had been compensating for slight gusts under the wings with the ailerons, so I thought, but upon noticing the play in the bearing and releasing the stick, I found that the inherent stability had been taking care of the gusts and that I had just been moving the stick to the extent of the loose bearing.

On the ground, the ailerons, rudder, and elevators are effective at 10 m.p.h. This gives a large speed range for student training. Auxiliary shock absorbing wing tip skids may be added. However, the wing tips and ailerons are protected by a small "U" shaped hand grip on the tip, which is so designed as to keep the wing tips and ailerons off the ground at all times.

As for construction details: The wings are of conventional two spar construction. The spars and ribs are of spruce. One-eighth phenalic resin glued fir plywood is used for the nose and auxiliary ribs, and the reinforcing plates at the strut and root fittings. Our own 1/20 inch poplar phenalic resin glued plywood is used for gusset plates, aileron boxing, and leading edge. Dural drag struts, #15 hardwire and turnbuckles comprise the drag and anti-drag truss. 1025 steel is used for all

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