The New Schweizer Utility Glider

By Paul A. Schweizer

REALIZING the need for a safe, well designed single place training glider, we have developed the Schweizer Utility Model SGU 1-19. This design is based upon our fourteen years' experience in building and flying gliders and particularly upon our experience with our utilities, model SGU 1-6 and SGU 1-7, and upon our careful observation of the construction, performance and utility of various other makes of training gliders. The use of gliders by schools and clubs for training young people was given special attention in this design, as well as the need for an efficient utility glider for club soaring and general sport flying.

The result of all this study is the Model SGU 1-19, which we feel is the nearest approach to the ideal, all around utility. Flight tests, under all types of conditions including simulated primary training conditions, have shown it to be exceptionally sturdy and stable and practical for all around use. Many successful thermal and ridge soaring flights have been made with it, which is indicative of its good performance. Although this glider is not intended for aerobatics, experimental flights incorporating all the classic maneuvers, including prolonged inverted flight, have been made.

Considerable time and study was put into the problem of what general flight characteristics should be incorporated in this glider. It was felt that the rather sluggish and ineffective controls of some prominent utilities should be replaced by more effective and responsive controls so that the student would learn from the start the real effect of the controls and not get into bad habits and sloppy flying that the former tend to develop. It was felt that the special design and the few extra mile per hour flying speed necessary to get this characteristic was well worth the price. Although responsive controls were desired, they were not to be too effective so as to be trouble makers and cause overcontrolling. This was accomplished by developing sufficient stability into the ship, by careful weight control, balance, wing and tailsurface design so that it would be very difficult, or better yet, impossible to get into trouble.

Test flights by 10 different commercial glider pilots have resulted in concurrence on the wisdom and success of this approach. The glider is a happy compromise of control and stability. When stalled it will mush for prolonged periods with no tendency to fall off. It can only be spun by forcing it in by crossing controls and then only when the center of gravity is well back. It appears that with reasonable c.g. control by the use of adjustable seat and possibly balance weights on the nose, it will be a non spinning glider. Further exhaustive tests are being carried out in an attempt to achieve this characteristic.

In designing this glider an effort was made to obtain as much performance as possible and still have a practical and low priced training glider. It was felt that good utility performance is of no detriment to a trainer, in fact, a better gliding angle and sinking speed would result in longer flights from a given altitude, give the student more "room" in which to operate and give him more satisfaction from a more efficient flight. With this extra performance the utility becomes a very good soaring plane, one which the "C" and Silver "C" duration can be won with ease.

The general construction is of rugged, conventional design. The fuselage if of welded chrome moly tubing with special emphasis upon sturdy construction and maximum pilot protection. Fairing is of steel and aluminum tubing and is kept at a minimum for simplicity. The whole structure is fabric covered. The landing gear consists of a rubber sprung front skid of ash, a low pressure landing wheel with brake (Mechanical brake optional) and a rubber sprung tail skid. The pilot's seat is adjustable with 6 positions for different length and balance. Much thought has been given to the instrument board and cockpit design to minimize injury in case of a possible crack-up. For normal training, no cockpit cover is used, for soaring, either a cockpit cover or a full enclosure is used.

The tail surfaces are of optional design. For the production models the rudder and fin are made from aluminum alloy and the elevator and stabilizer are made from steel tubing. For the kit construction or when preferred for reasons of service or repair, all the surfaces are made of wood and plywood. The general tail surface design using the "following" tail which was so successful in the model 1-7, is used here with equally good results. Although the fin appears to be an integral part of the fuselage, it is a separate unit and may be removed by taking out 5 bolts. The span of the elevator was kept down under 8 feet in order to be able to transport it on the trailer set up. This will save assembly time and speed up operations. For long trips they are of course, removed.