

THE SCHWEIZER 1-30

by ERNEST SCHWEIZER

The Schweizer 1-30 is not a powered glider, but a light airplane. It has its origin in the 1-26 sailplane in that it uses the wings and tail surfaces, with certain modifications, surfaces, with certain modifications sary. The basic aerodynamic configuration is also essentially similar, as are its flight characteristics. It has been soared with engine idling, but this is not the basic intention of the design.

For several years the possibility of adapting some of our glider designs to a light powered aircraft has been studied and various preliminary designs were worked up, including the 2-27. This was never built, but had progressed well along in design and accounts for one of the numbers in the gap between the 1-26 and 1-29.

Early this year, we came up with a single-place design, using a 65 HP engine and 1-26 wing and tail surfaces, as a utility airplane and glider tow-plane. It was felt that such a prototype would be the most economical project to check in flight our ideas on an improved light airplane design.

Construction began in April and the completed aircraft was test flown on August 1st. It proved to have very interesting flight characteristics. For the first 25 hrs., it was restricted to our test pilots, Clarence See and Clyde Cook. Since then it has been flown by some 20 pilots of varying experience. The pilot reactions have been very favorable and, at this date, over 50 hrs. of flight time have been completed.

The 1-30 was designed for aero towing so a tow release installation was built into it. With a flat pitch towing propeller, it has towed the 1-26, 1-29 and 2-22 with two people. The rate of climb is about 500 ft. per minute with the 1-26 and about 300 ft. per minute with the 2-22. The take-off run is approximately 500-600 ft. so that it would be excellent for club operation in an average field. No tests have been made with a TG-3 or Pratt Read, since it would appear to be marginal with 65 HP. The 1-30 is adaptable to engines of about 100 HP. With more power and suitable propeller, the towing performance should be outstanding.

In studying the production possibilities of the airplane, its various

uses are being considered and the question of the market as a single-place airplane brings a mixed reaction, although the majority of comments seem to be that it should be a two-place airplane. In line with this thinking, tests have been run at higher gross weight. With a 1350 lb. gross, it still has good take-off and climb performance so that this does not appear to be a problem. With more power the performance should be very good.

To consider the aircraft from a British "ultra light" point of view, a light 40 HP engine would be ideal, but such engines are not readily available and would be unsuitable for towing.

Actually, the design was largely around the 4 cylinder Continental engines of 65, 85 and 90 HP and, because there is very little difference in weight and dimensions among these engines, any of them could be used. It was decided to build the prototype with the 65 HP as this appeared to be adequate for most uses.

The landing characteristics are unusual for a light airplane. The use of spoilers makes it possible to land in an extremely small space with steep approach angles. The spoilers of the 1-26 were retained without change except that control is by a lever on the left hand side. The procedure for landing is as follows. The last turn in the pattern is made high, 300-500 ft., and full spoilers are used. The power is reduced to

idle before applying the spoilers which are then used as in a glider to the desired touch down point. At a 55 to 60 mph approach speed, the flareout can be made with full spoiler and the landing roll is very short. In a 10-12 mph wind, it is possible to stop in 75-100 ft. The angle of attack at landing is not critical with spoilers on as contact can be made first by the tail wheel or the main wheels with no bouncing, even in relatively high winds which would give the average light plane trouble.

The approximate glide ratio at 55 mph and full spoilers is 5-1, which permits a steep approach over obstacles. In still air it will bring the airplane to a stop in 450 ft. after passing over a 50 ft. obstacle. With a climbing propeller, it is possible to climb out over the obstacle in the same distance.

The landing gear is a 24ST aluminum alloy cantilever gear leg which has compression rubber in the inboard end for shock absorption; 6.00x6 wheels are used at low pressure. This combination makes a rugged gear for rough fields which has very little bounce, and is very easy to land.

The normal glider assembly procedure is retained making it possible to remove the wings for storage. A rig will be developed to hang the wings on the fuselage so that the airplane can be trailed home by car. The wings are modified in the spar so that they will not fit a standard 1-26 fuselage. However, it would be possible to modify a 1-26 fuselage so that the wings could be used.

The fuselage is a rugged aluminum alloy structure in the cockpit
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The prototype Schweizer 1-30 proves itself a practical towplane with only 65 HP by getting off a fully loaded 2-22C with no trouble.

Photo: Schweizer Aircraft Corp.

