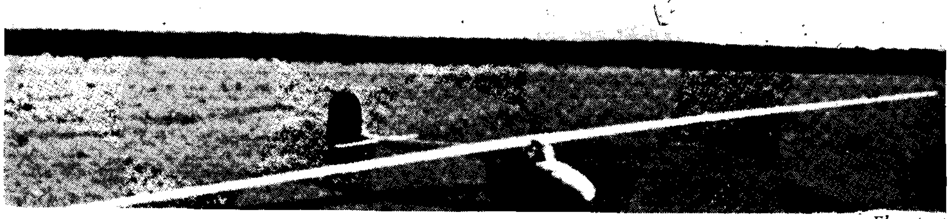


Flugsport

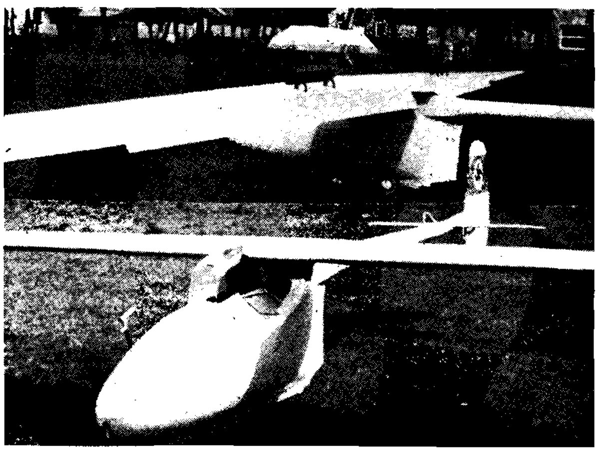
The DARMSTADT 30

The design and construction of this sailplane, the thirtieth design of the famous Technical School at Darmstadt, is the work of Alt and Puffert. Their idea was to achieve a reduction of sinking speed, together with an increase in cruising speed for cross-country soaring. Its wing, with a great span of 66 ft., is made in three parts. The center section is 33 ft. The 16½ ft. tips are adjustable in flight from 10° up to 2.5° down. The purpose of this remarkable feature is to determine the advisability or the reverse of gulled wings.

To attain minimum drag, a very thin wing section was chosen, and to provide sufficient strength, it was necessary to use metal construction. The ship has an aspect ratio of 1:33, the greatest ever built into a sailplane. A few years ago, it would have been considered impossible to build a full cantilever wing of such ratio with such a thin section.

To facilitate landings, there are trailing edge flaps, as well as spoilers. The differential ailerons can also be deflected to act as additional flap area, increasing the gliding angle. The ship has a boom tail and plexiglas cockpit cover.

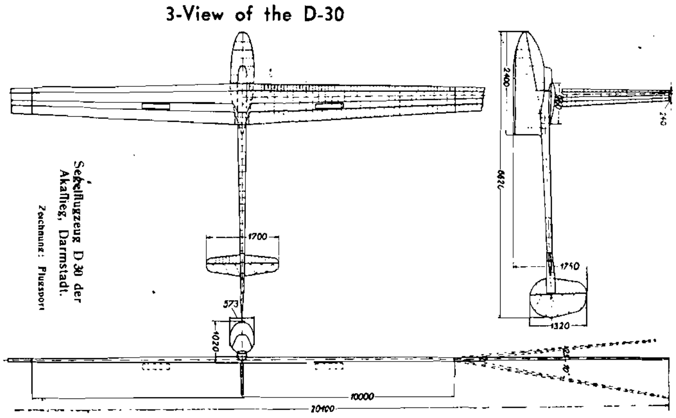
Two views of the D-30



Specifications

Span (wing level)	66.3 ft.
Span (full dihedral)	61.7 ft.
Length overall	21.7 ft.
Wing area (12 sq. m.)	129 sq. ft.
Weight empty	438 lb.
Sinking speed	1.6 ft./sec. @ 39 m.p.h.
Best gliding ratio	1:36 @ 45 m.p.h.

3-View of the D-30



The Stanley Sailplane

(Continued from Page 9)

lining into the fuselage. My plane uses seven degrees, or that angle at which the fuselage is pointed along the flight path at forty miles per hour, my best cruising speed. The take-off run is about one-fourth of conventional amount, the landing can be accomplished much slower and in shorter space, and, in general, the performance in close quarters is simplified.

The use of radio will greatly facilitate cross-country flying in the West, where towns are rare, and desert spaces hard on the feet. Tow car and sailplane are in constant communication, and can keep relatively close together, minimizing delay after landing, and saving telephone fees. Range depends upon altitude, and is generally visibility distance. For contest purposes, the advantages accruing as a result of time saved by tow car's early arrival are manifest. Batteries are necessarily carried for other electrical needs, and the additional weight of another circuit on the broadcast band being so trifling, I plan to install, also, a small broadcast receiver for amusement on local flights.

The choice of a Frise type aileron was made to overcome the adverse yawing moment inherent in conventional ailerons, and to that extent has succeeded; right aileron automatically gives right turn. This feature has, however, the disadvantage that in a continued tight spiral, in which constant reverse aileron is required, an unnecessary drag force is present. On the basis of this condition, the choice seems only partially correct.

Metal construction seems, on the surface, to be both expensive and heavy. Actually, it is neither. Once complete, no further upkeep is required during the life of the ship; it is weatherproof, requires no finishes, and is not subject to local abrasions as is wood. The cost of metal or plywood per square foot is about the same, discounting costs of finish and paints. Of course, some facilities, especially for metal working, are required. After the first ship is completed, the labor required is somewhat less than is the case using other types of construction, though the first model does require a great amount of engineering and tooling time. Built somewhat as an experiment, the metal fuselage has proven all that I had desired, and has firmly sold itself to me as the ideal material with which to build.