A "ONE DESIGN CLASS" CONTEST SAILPLANE

by Parker Leonard

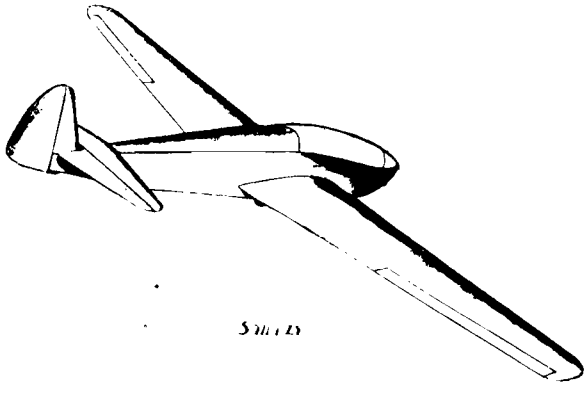
This rough draft proposing a sailplane that would be suitable for average construction facilities, yet good enough for contest flying is offered in the hope that it will stimulate constructive suggestions and criticism to the end that a better design will evolve and ultimately be accepted by the Soaring Society's Technical Committee and developed for the purposes outlined.

The low position full cantilever wing has been adopted in an effort to combine fairly high performance with maximum visibility. Contest flying is sure to involve some close flying and good visibility is the surest protection against collision danger. Although sufficiently high performance to soar under only fair conditions (a gliding angle of 20-1 is ample) is needed, we must not get up into the international contest class where super performance results in such long cross country trips that contestants are both physically and financially soon worn out and unable to enjoy the contest after the first day or two.

The general over all dimensions and specifications have been kept very decidedly just average. Span, length, weight, etc., are all governed by the thought that this ship should be not too big, nor yet too small. It must fly and land at a safe speed, but still be able to reach from one thermal to the next.

Briefly, this medium high performance soaring plane is designed to afford a simple, practical ship that will serve as an advanced project for high school construction courses and be a National one-design class comparable to the Star boats in the sailboat racing field.

The fuselage has been kept to the flat-sided V bottom type with a round top, all plywood construction, to make it easy to lay out and build. It should fly only slightly less efficiently than the oval type. Certainly not enough is gained in the oval fuselage to warrant the extra trouble required to build it.



The wings and tail group are of conventional D tube plywood leading edges with fabric covering the balance of the surfaces.

Sailfly

Span	46′
Length	21′
Fuselage width	24″
Fuselage height (less wheel)	44″
Weight empty	320 lbs.
Wing area	172 sq. ft.
Aspect ratio	11.5
Gliding ratio	20-1
Wing Root chord	66″
Tip chord	24″
M. A. C.	48″
Root Airfoil	NACA 4418
Tip Airfoil	NACA 4412
Geometric Twist	4°
Dihedral	5°
Taper ratio	2.6 to 1
Tail Stabilizer & Elev. span	10′
Stabilizer chord	20″
Elevator	20″
Rudder Height	54″
Rudder chord	36″
Fin chord	16″

Please remember the above is only a suggested design. Comments and criticism are most welcome and I hope that all who have time to consider this problem will send in their suggestions.