

Figure 4

Fuselage and tail surfaces are standard. The pilot's seat is also that of a standard sailplane with an open cockpit.

The materials used for this type of sailplane are plywood, pine, and fir. The fittings are of steel, duraluminum, and hydronalium. A number of severe accidents while stunting sailplanes has shown that the load factors of most sailplanes are not sufficient for stunting. In order to guarantee unrestricted stunting with the "Habicht" type, the stress analysis was carried out under the same load factor as for airplanes of group HK5. Figure 2 shows a comparison of stresses between the stunting condition BF. Gr 5 and the normal flight condition BVS. Gr 2. Accordingly, the increase of stresses in the other types is similar. Figure 3 shows a comparison of the maximum fuselage stresses by sheer and bending moment. The principal load figures of the "Habicht" are as follows:

A—Fall	nBruch	= 12
B—Fall	vsicher	= 234 m.p.h.
C—Fall	vsicher	= 462 m.p.h.
D—Fall	vsicher	= 234 m.p.h.
F—Fall	nBruch	= 6

As the stresses of the "Habicht" are considerably higher than for standard sailplanes, they required a very detailed analysis of all parts and a multitude of detailed tests of such members whose stresses could not be calculated beyond any doubt. This was necessary in order to find the minimum breaking strength load for all parts, as well as to reduce the weight of the sailplane to a minimum. Of the many tests, the one of the shoulder piece of the wing should be mentioned particularly. As mentioned above, torsional stresses of the wing are carried to the fuselage by a strong rib. This design results in large horizontal forces at the point where spar and rib connect. After a number of tests, it was found that the solution shown by Figure 4 was most favorable. It consists of fillers on both sides of the rib with the plywood covering reinforced to absorb tension. Figures 5 and 6 show the break test and the break on the upper side of the shoulder piece.

The "Habicht" has fulfilled expectations with the exception of some small details. It has excellent maneuverability, and can be controlled without effort. The entire program of stunting can be carried out safely with this ship. In addition, it was dived up to 250 miles per hour without showing any dangerous characteristics. It may be assumed that the "Habicht" type fills the gap in glider design which was caused by the withdrawal of license for stunting of standard gliders.

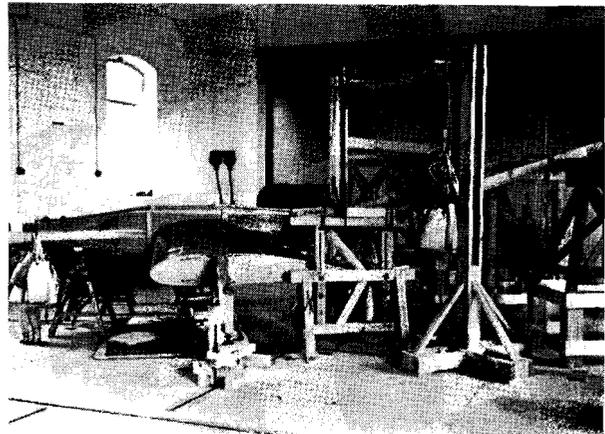


Figure 5



Figure 6

SPECIFICATIONS

Wing Area: 170 sq. ft.	Sinking Speed: 2.6 ft./sec.
Aspect ratio: 1:10.7	Weight empty: 220 lbs.
Gliding angle: 1:21	Useful load: 198 lbs.