



Photo by Jack L. Hiller

The very pleasing lines of the French Edelweiss as well as its smooth exterior can be seen in this photo of the ship taken at Cumberland, Md.

JEAN CAYLA'S EDELWEISS

BERNARD RIGAZIO

During my stay in the United States I have been asked many many questions about the Edelweiss which I would like to take this opportunity to answer. I feel competent to write about the ship because I have watched her development from the very beginning and have personally observed many of the numerous test flights made by the pilot Jacques Gomy. Furthermore, my home airfield is Beynes, about 20 miles west of Paris. It is here that the French team is located, which means that weekend after weekend I have had the chance to watch the ship in action and to hear a lot of discussion of its pros and cons.

I realize that such a situation might induce me to become emotional, but I do feel that my considerable experience with other modern sailplanes, such as the Breguet 901, the Foka, the Zefir and the Vasama, will help me to be factual and fair.

Jean Cayla, a French engineer, designed the Edelweiss. He is a designer of international repute, having been responsible for the Breguet 901 which placed first in the 1954 World Championships in England, with Gerard Pierre flying. Two years later the same design won the 1956 World Championships, flown this time by Paul MacCready. The same glider, although considerably improved, almost made it a third time in Argentina in 1963. The pilot was Francois Henry.

The Edelweiss is the most recent glider that Cayla has designed. Its record, thus far, includes a second in Argentina (flown by Lacheney) and first in England at the most recent World Championships, where it was flown by Henry. Cayla is also the designer of the top-notch Breguet 904, a two-seater developed from the 901, which was produced in limited quantities for the two French national gliding schools.

After having supervised, in 1959, the construction of the last of the Breguet gliders, the 906 *Choucas*, Cayla concentrated his attention on the study of the NACA 64 family of airfoils, modified according to the principles of series seven, of which the objective is the increase of laminar flow on the under surface of the wing. Theoretically this flow can be extended as far back as 70 to 80 per cent of the bottom surface of the section and about 40 per cent of the top surface. It was Cayla's feeling that this approach would give a good compromise, one that would permit the airfoil section to maintain its better qualities through a broad range of flight conditions.

By the time of the World Championships at Cologne it was obvious, in ships such as the Austria and Foka, that the Standard Class had achieved a high degree of sophistication. Thus, when the Siren Company began the study of a high-performance glider in 1960, the specifications called for exceptional performance ability. A good speed range was essential and low-speed flight in weak conditions was given the most serious consideration. Cayla was given the job.

Based on his earlier studies, sections of the NACA 69 series were chosen for the new design. And in order to insure to the greatest profile stability, sandwich construction was adopted. It has also been demonstrated that considerable savings in drag could be achieved by using a V-tail. This configuration permits a 15 per cent reduction of total tail-surface area while maintaining stability and maneuverability characteristics equal to those obtained with conventional arrangements. The semi-reclining position was used to reduce fuselage frontal area by some 25 per cent which in turn led to a three per cent increase in the gliding