Hans-Jürgen Unverferth's "CO^7 V4"

Andrew MacDonald, formerly of Adelaide S.A., Australia, has provided us with an entire package of information about Hans-Jürgen Unverferth's most recent creations — enough for a series of four articles. This month we'll focus on Hans-Jürgen's CO^7 (CEOSIEBEN), a high performance swept wing sailplane for the F3B, F3F, and F3J environments. Coordinates and basic aerodynamic data for the three airfoil sections used on CO^7 will be published in the next issue of *RCSD*. That will be followed by a description of Joined II, the follow-up model to the Joined I which was described in our April '96 column. A presentation of Hans-Jürgen's thoughts on the potential performance of tailless sailplanes will make the fourth and last installment of the series.

And now on to CO^7!

CO^7 V4 is the model Hans-Jürgen used to win the Kaltenkirchen Cup in 1995. The annual Kaltenkirchen contest is for tailless sailplanes only, but is based on the F3B venue and is intensely competitive — a real test of any soaring machine.

CO^7 is a direct descendant of CO^2, a very successful model which has been kitted and remains very popular in Europe. CO^2 used a carbon fiber spar, and both Hans-Jürgen and his friend were very impressed with its rigidity. After taking the first CO^2 wing out of the vacuum bag, both said "Oh..," and the name C (carbon) O^2 (two "oh.."s) came to be. Yes, CO^3, CO^4, CO^5, and CO^6 have been built!

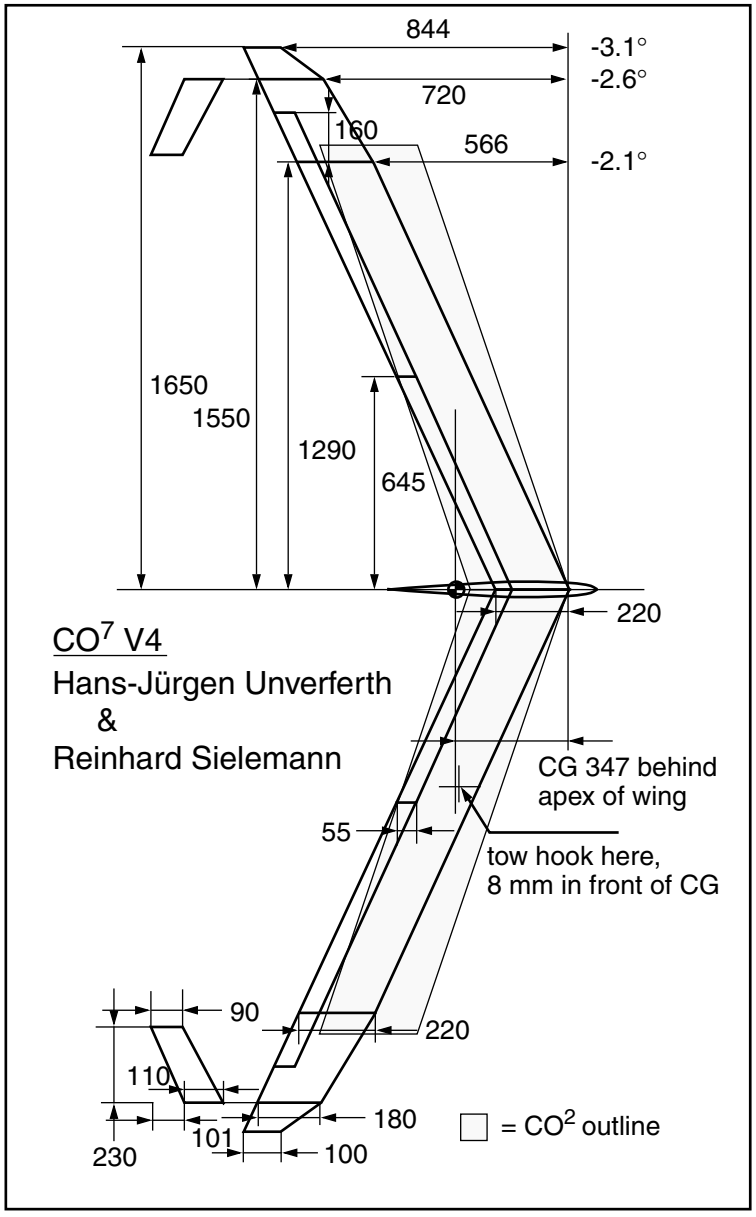
CO^7 consists of a moulded composite airframe using fiberglass and carbon fiber. The wing is entirely flat and is built in three separate pieces which assemble for flying. It differs from CO^2 in several respects:

- it has a higher aspect ratio, about 16.5 vs. 9.0,
- it has a greater sweep angle, nearly 25 degrees vs. 18 degrees,
- it incorporates a semi-crescent planform while CO^2 used a simple constant chord wing,
- its winglets are inboard from the wing tip,
- it utilizes a more complex wing twist geometry.

The accompanying diagram shows the CO^7 planform and relevant dimensions, including wing twist and locations of the center of gravity and

tow hooks. Note the center of gravity is within the aft fuselage. This is an excellent location, as the model is well balanced while being held for winch launching. Also be aware there are two tow hooks, each mounted at identical spots on both wings. A bridle is needed, but launch loads are thus spread relatively evenly across the entire span, rather than being concentrated near the fuselage centerline.

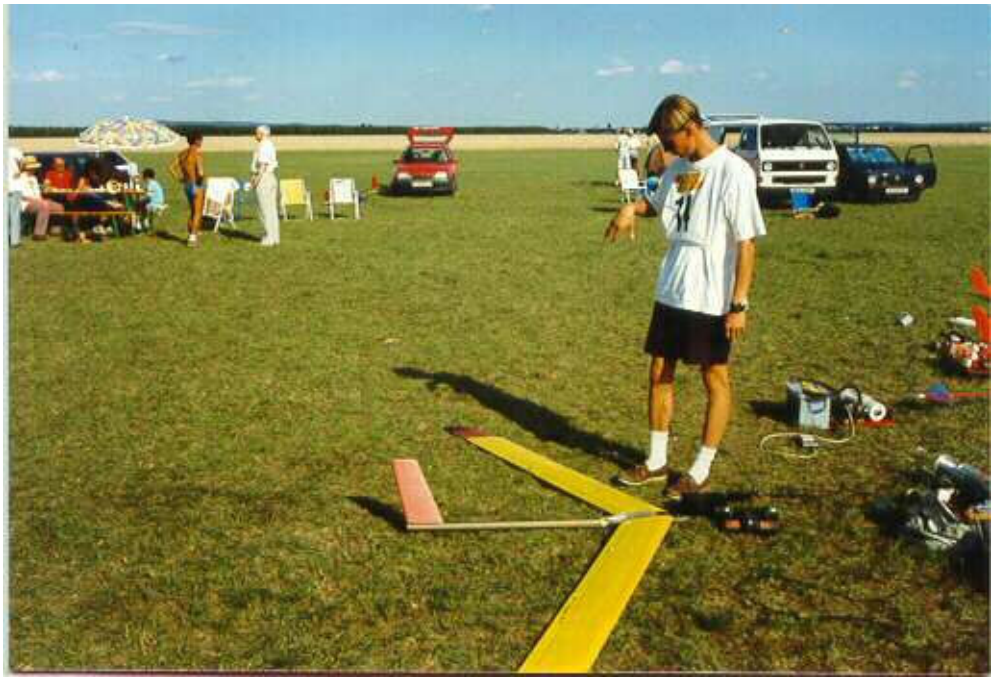
Recent information from Hans-Jürgen indicates CO[7] will soon be commercially available, produced by a fellow in Russia whose experience is in free flight. He should be able to turn out some very light weight, yet strong, models.



Hans-Jürgen Unverferth and CO^7.

A CO^{7}at launch!

Hans-Hürgen Unverferth at the controls as CO^5 is launched.



CO^6, a departure from the winglet planforms of others in the CO^x series.