

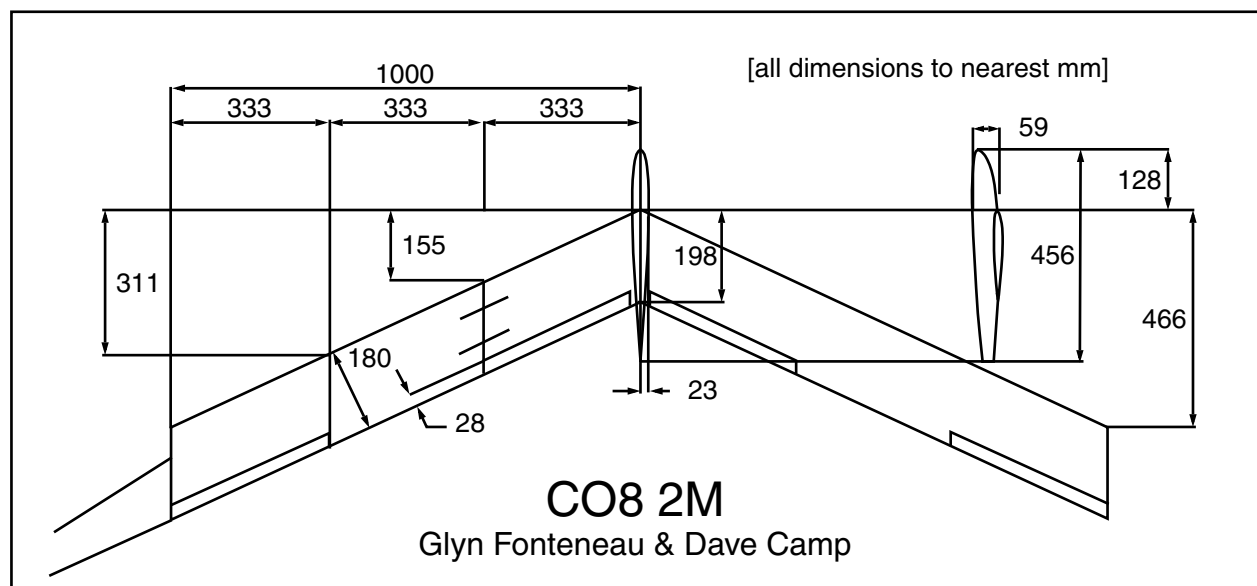
Glyn Fonteneau & Dave Camp's CO8 2M

We have been corresponding with Glyn Fonteneau via e-mail for some time. Although having a long term interest in flying wings, he started his excursion into tailless sailplanes only recently. Glyn built and flew a copy of Herk Stokely's RC-HLG (*RCSD* March 1997), while his friend Dave Camp decided on a RC-HLG version of Hans-Jürgen Unverferth's CO7 (*RCSD* September and October 1997). Both models were a success, and the experiences acted as an impetus for both to build something with greater performance potential.

Andy MacDonald's web site <<http://www.ozemail.com.au/~flyingwing/>>, for those who have yet to visit it, is a comprehensive collection of information concerning RC tailless soarers, including both planks and swept wing planforms. Andy's focus is on contemporary designs and construction methods, so swept wing planforms very much take center stage. The information for Hans-Jürgen Unverferth's CO series has come directly from Hans-Jürgen himself, and makes for exciting reading. Hans-Jürgen indicates that with the advent of CO8 (*RCSD* May and June 1998, and April 1999), performance of swept wing planforms has now met, and in some cases surpassed, that of conventional tailed sailplanes. Glyn and Dave decided to build a version of the CO8 design.

Determined to construct low cost models, and motivated by a rather unique club contest format involving evening flying of two meter 'ships, they decided on that span. The resulting models use all of the other parameters of the CO8, including the wing chord. An advantage of taking this route is that wing templates for a "normal" size CO8 are already made. Glyn provided an overview of the resulting two meter planform in a recent e-mail, and we've included it here.

As you can see from the drawing, each wing is made of three same size pieces. The airfoil (Reinhard Seilemann's RS004a) remains constant across the span, but the wing twist is stepped at





Dave's CO8 2M in flight.



Dave's CO8 2M with nose cone removed. Very compact.



Dave Camp ready to launch his CO8 2M

each panel break. The blue foam wing uses a full depth 1/32" plywood spar, capped with 1.125" wide uni-directional carbon from Aerospace Composites (14210 Doolittle Drive, San Leandro California 94577. Order Desk: (800) 811-2009, Technical Assistance: (510) 352-2022. FAX (510) 352-2021. E-mail: Info@acp-composites.com.) The wings are vacuum bagged with epoxy and fiberglass laid out at a 45 degree angle to the leading and trailing edges. The mylars were pre-painted, yielding unique color schemes and ideas for future models. Volz Wing-Star servos drive the elevons, JR 331s drive the flaps. The winglets sport the same RS004a section (RCSD May 1998) as the wings and are vacuum bagged foam, epoxy and fiberglass.

The fuselage is made using the lost foam method. Slip off nose cones, constructed with the help of and *RCSD* article (March 1998), are a part of both models. While the fuselage is a bit longer than necessary, it is quite attractive and aerodynamically clean. The receiver aerial runs straight out the rear of the fuselage through a small diameter plastic tube.

The Panknin twist spreadsheet, available through <<http://www.halcyon.com/bsquared/Panknin.html>>, served to locate the CG. For safety, the CG was placed an inch ahead of the determined point during initial test flying. The completed aircraft with forward CG weighed about 32 ounces.

Significant up trim was necessary during first hand launches, as expected from having the CG located forward of the computed location, but the glide angle was exceptional. Flight testing



Glyn Fonteneau and his CO8 2M

almost immediately proceeded to high-start launches using a single tow hook. The model went up the line dead straight and released without difficulty. During further flying sessions, weight was added to the rear of the fuselage to bring the CG back toward the location predicted by the spreadsheet. Measured duration steadily increased, from 3.5 to 5 minutes. This performance improvement paralleled the addition of 4.5 ounces of lead to the aft end of the fuselage. Small flap deflections were tried in a successful effort to improve launch height. With flaps slightly deflected, these models will thermal hands off - certainly an exciting discovery.

The most impressive display of the performance of these models came after they were trimmed properly. Here's some excerpts from what Glyn had to say about their experiences flying with larger, slower aircraft:

“(We) both went out late in the afternoon, wind now 5 m.p.h. or less. Several 3.5 meter F3J type gliders were slowly cruising the air and staying up very well. We were surprised that our models would stay up so well considering the speed they have to fly. Even with thermal flap set they were traveling faster than the F3J machines. Glyn had a 12 minute flight and Dave a 20 minute flight. We think this shook up the other fliers because Dave only came down to explore the aerobatics capabilities. Climbing inverted turns were possible in the weak lift. Coupled aileron/flap improves the roll rate, with very little flap required (2 mm down used).”

Dave and Glyn are obviously quite pleased with their CO8 2M design. There has been only one instance of “propellering” on tow, that due to too steep a launch with flaps too far deflected. Large flap deflections coupled with down elevator are required to slow for spot landings. (Practice, practice, practice.) This model does not suit the “float around the field looking for lift” method. Rather, the CO8 2M seems to desire to go out and cover ground in an active search for lift. Glyn says it will be interesting to see how the CO8 2M works in the evening against the “Gentle Ladies” entered in their club contest.

With the success of the CO8 2M firmly established, Glyn and Dave are now contemplating a CO8 of 3.3 to 3.5 meter span, perhaps with a bit more chord. The pair would also like to experiment with potential fences, as this may help obtain even higher launch altitudes. There’s also a desire to incorporate a “six flap” control system. Additionally, Glyn is drawing up plans for a 1/4 scale SZD 20 “Wampir,” a Polish tailless design which has been on his “to do” list for more than ten years, and Dave is considering a 1/4 scale SB 13 “Arcus.” Glyn and Dave have promised to keep readers of “On the ’Wing...” updated on their various projects. They are currently fashioning a web page detailing the CO8 2M.

If you have a tailless project which you feel may be of interest to *RCSD* readers, please let us know. We’re always on the lookout for material for future columns. Contact us at P.O. Box 975, Olalla WA 98359-0975, or at <bsquared@b2streamlines.com>.