

SUGGESTIONS FOR FIRST 'WINGS - PART II

Last month we suggested Dave Jones' Raven for those used to flying sailplanes with rudder and elevator. This month we'll cover Dave's Blackbird 2M, our suggestion for a first 'wing for those flyers with aileron experience.

The Blackbird 2M, as the name implies, is a two meter tailless sailplane. It bears only a slight resemblance to other "plank" designs as it has a lower aspect ratio (about 5:1), and a sleek fin but no rudder. Control is by elevons. Performance is noticeably better than the Raven's; it is also faster than the Raven, and does extremely well on the slope as well as in thermals.

The Blackbird 2M can be built with detachable wings, or as a one piece airframe. Detachable wings make transportation easier, and some builders may want to add ballast tubes in the wing roots during construction. A one piece airframe means less overall weight, but the addition of ballast may be kind of tricky. Overall airframe strength for the two versions should be about equal.

Like the Raven plans, these show the CJ-3309 airfoil. Our recommendation, followed by at least two other builders, has been to use the CJ-25²09 instead. This provides better penetration qualities with no loss of thermaling performance. Construction is not affected as both airfoils have flat bottoms and there is no twist built into the wings.

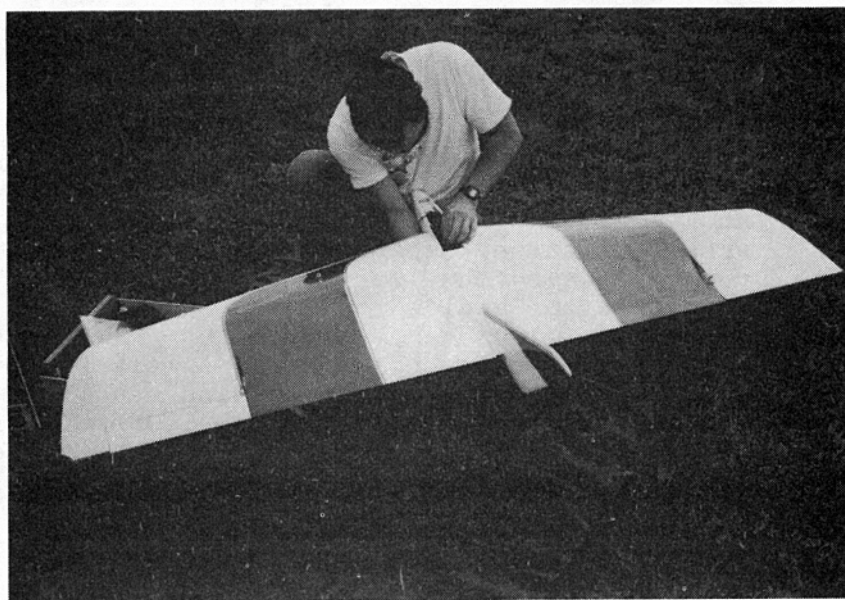
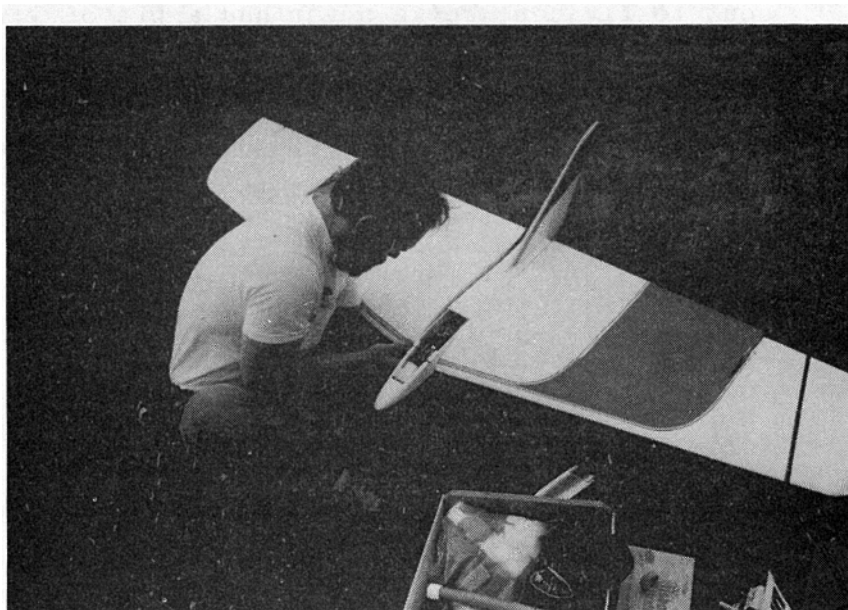
For best performance, the elevon servos should be placed in the wings with direct connections to the control surfaces. This means running cables through conduits, but with the servos moved out to the inner edge of the elevons the fuselage becomes rather cavernous. We placed an antenna tube right behind the leading edge of the wing. Linkage adjustments are a breeze with this configuration, and all of the play resulting from snaked push-pull cables is eliminated. Our Blackbird XC has its standard size servos in its wings, while our two meter, built

before we knew better, has its two micro servos in the fuselage. We've intended to move them for some time but have not yet done so, and we curse ourselves each time we go out to fly her. We've never had a bit of problem with glitches caused by the antenna being close to the servo leads. (JR Century VII, FM PPM system)

The most astounding part of flying the Blackbird 2M is the zoom at the end of tow, and in general the stiffer the breeze the higher the zoom. We enlarged the width of the spars to 3/4" at the root, but left their thickness as noted on the plans. The wing rods are as specified. We consistently launch this two meter version without pulsing the winch at all, and the zoom can double the height achieved. We could probably get even more height if we installed flaps on the beast! We're not sure an unmodified spar system could take these sorts of loads. What's so impressive about the Blackbird 2M is the fact it uses no exotic materials; balsa, plywood, and spruce make up the entire airframe.

Our Blackbird 2M, which we've called Candide ever since her first flight, is still going strong after more than five years. Why the name Candide? Because that first flight was also our first ever with an aileron equipped sailplane. (We were flying our Ravens exclusively until then.) It was at a Northwest Soaring Society contest in Burlington, Washington, and took place after a single hand toss over tall grass. Actually, she was trimmed out perfectly but the pilot wasn't up to her capabilities. Those of you who have heard the late Leonard Bernstein's "Overture to Candide" have the idea.

We fly in a county park which is relatively long and narrow. Luckily the wind usually comes out of the right direction. One of our favorite flight patterns is to launch to the west, then fly east and downwind over the roadway and trees at the north boundary of the field. Sometimes we get some lift from the line of trees, sometimes from the road. We keep travelling east until we're past the eastern border of the park and well over a quarter mile away. Visibility, even at that distance, has not been a problem. After





circling the trees, parking lots and road at the east end of the field for a while, we most likely will get impatient and a bit carried away by the capabilities of the Blackbird 2M and head her back toward us, traveling west again. Our usual goal is to apply just enough down elevator for Candide to come directly back, always in the same spot in the sky, about 30 degrees above the horizon, but getting larger all the time. The gain in speed is fantastic, and we thoroughly enjoy peeling off at the last moment and watching her swoosh past and go into a graceful climbing arc while bleeding off airspeed. There is very little noise, and what there is most likely comes from the finger holes under the wing roots.

As those who have built the Blackbird 2M can attest, its performance is very good and it's extremely maneuverable. In as few words as possible, it's a real kick to fly. At the risk of being branded heretics, we'd like to see someone build an electric version!

