

On the 'Wing... # 171a

Blackbird XC.3 update

A few days after the second installment of the Blackbird XC.3 series was submitted for publication in *RC Soaring Digest*, we had the opportunity to fly the aircraft again and we were able to make the minor changes we outlined at the end of the original article series.

Since then, a large number of flights have been put on the airframe, and more than a dozen Seattle Area Soaring Society members have had turns at the controls. The aircraft is incredibly stable in the air, and a number of pilots have stated it responds very much like a trainer.

The 2.5% static margin has not been changed. The aircraft reacts actively to control input, but elevator control is not in any way overly sensitive. Additionally, there is no “nodding” during sustained straight and level flight. This indicates the aircraft pitching moment and center of gravity are well coordinated.

The tow hook has been moved back to a point a quarter inch in front of the CG. This gives a good steep climb without any tendency to pop off or wander on tow.

The zoom off launch is strong enough that we've had to replace the main wing rod - 3/8" drill rod - with the same diameter hardened steel. The replacement rod has survived powerful launches with no residual bending in evidence.

We finally settled on a flap-to-elevator mix of 75%. This setting thoroughly inhibits any pitch change as the flaps are deflected or retracted. Putting the flaps down 45 degrees noticeably slows the aircraft, steepens the glide angle, and dramatically improves steadiness in both pitch and yaw when flying through turbulent air. The available down elevator deflection which remains, although small, is sufficient to maintain full control during landing approaches.

As is common with this design, you can take advantage of small bubbles of lift by flying straight through them. The nose rises as the aircraft climbs. Once you see the climb slowing, a touch of down elevator brings it back to level flight at the higher altitude. If substantial lift is found, the Blackbird XC can be banked steeply and brought around quickly to center the thermal.

The Blackbird XC is truly a joy to fly, a sentiment shared by an increasing number of SASS members.

