



Hand Launch Flying Wing R/C Glider BY KEITH SHAW



When hand launched R/C gliders (HLG) first came out, I was fascinated by them, as they rekindled my enjoyment of FF HLG. However, I've noticed that most existing designs fail to reliably reach peak altitude due to poor transition. Since standard FF launch patterns don't seem to work very well (probably because of the higher roll moment), a straight out 45 to 60 degree launch with down elevator transition is normally used. An early transition or a stall and recovery can easily lose 15-20 feet of altitude. Other objections were the tiny wing area, fragile structures, and the need for microscopic radio gear.

HLG is a game of aggressively searching for every little thermal perturbation and fighting with it. Here in the midwest, low level thermals are very small in size and quite violent. Great L/D or low minimum sink is much less important than quick maneuverability. The flying wing configura-

tion was chosen because of the low pitching moment and virtually instantaneous stall recovery. High tip dihedral angle and large rudder action result in very quick roll response. A 60-inch span flying wing has lots of area, so a robust structure and mini-sized radios can be used while still achieving a 4 oz./sq. ft. wing loading. The Blackhawk can maneuver quicker and circle tighter than any other HLG on the market.

This performance did not come easily. The prototype was modified many times over the last three years, trying various panel and tip dihedral settings, rudder size, shape and moment arm, roll spoilers and ailerons. Several friends helped out by building Hawks with their own variations, such as different airfoils, wing structures and tow hooks. The version shown in the plans is the best compromise for HLG use. Other reflexed sections, such as the Seelig 5010 gave better

penetration and higher L/D when flown off a hi-start or slope, but exhibited poorer transition and stall recovery from hand launch.

My good friend, Ken Bates, built several Hawks with removable wing joiners and slightly reduced section spans (19-inch), so that the whole airplane, transmitter, and mini hi-start could fit in an airline carry-on case (8x16x20). Great for traveling!

As the structure is so simple and straightforward, a detailed building sequence is unnecessary. Start with the balance point as shown and do gentle hand glides to set the elevator trim before trying a full power hand launch. Shifting the balance more than 1/8-inch either way *dramatically* changes the handling characteristics, so be careful! If you decide to use a light-duty hi-start, be sure to use the wing mounted tow hooks and a split tow bridle.

I hope you enjoy your Blackhawk as much as I do mine.

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