

HI-START FREEFLIGHT GLIDER TECHNIQUES

By Dave Platt

This all started when I designed and built a free flight towline glider of 8 feet span. Heading blithely to the field, I discovered to my horror that I couldn't fly this new creation simply because I wasn't able to run those initial few steps to get things moving. I had no idea that I wasn't able to run; I hadn't tried in 20 years. Age had arrived!

What to do? Then, distant memory came to the rescue. I recalled as a kid of perhaps 8 or 9 watching a couple of older boys in the local park flying a simple all-sheet glider of about three feet span with a catapult system. They'd pull back the line, let go, and the glider would sail up steeply, level off smoothly at the top, and release.

Clearly this was the answer for an oldie to fly FF gliders. There followed a month or so of early-morning experiments with my eight-footer to find the technique that would give a good result. I won't bore you by listing the countless failures along the way -- let's concentrate on what the eventual answers proved to be. For any of you who face the same dilemma as I did and want to get in on the fun (there are going to be at least 3 meets in Palm Bay this year featuring this category), here are some pointers.

First, some ground rules. In order that hi-start gliders can be flown alongside hand-towed versions in competitions without any advantage to either type, the length of the hi-start needs to be gauged to what will launch a glider to a height the same as what the standard hand-tow 164' line produces. This turned out to be 50' of rubber joined to 150' of line.

The size and design of the glider is unrestricted. The only thing that will vary is the cross-section of the rubber on the hi-start. For a glider of 150 -300 sq. in's, (roughly A-1 size) a single strip of 1/16" square (indoor rubber) is adequate.

Say what?

Yes, it's true. One of the lessons learned was that too much power spoils everything. For a glider of A-2 size, about 6' span or so, one strip of 1/8" flat is just right. My 8' model, weighing about 2 lbs., launches perfectly on one strip of 1/4" flat.

The other big revelation was that the position of the towhook is critical. All early experiments focused on having the hook in the normal place for a hand-towed glider, that is, under the CG, at around 50% of the chord. Numerous wasted trips proved that this won't work on a hi-start. Sure, the CG should still remain in the 50% location, but the towhook must be brought significantly forward. About 20-25% works just fine.

An existing glider built for hand-towing is easily modified in one of two ways -- either move the current hook forward, or add another hook in the right place. You will need to have a good working auto-rudder. The type I have used with success is the swinging-arm (pendulum) variety. This allows independent control of the rudder to get a straight tow with the desired free flight circle.

So, drag out a glider and get it ready. White Dacron line is ideal for the line. A largish patch of Polyspan makes a good waterproof flag to pull the line off the hook and show you where the end is for the next launch. When you unroll the line from the holding drum, leave the drum at the stake point to make finding it easier.