



The Amazing In-Flight Rewinder
A Tale from the Beginner's Workbench
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As a newcomer to the esoteric mysteries of flying miniature machines made of Esaki and chopped-sticks (did this all originate in Asia?), I stood in envious awe when watching those giant dragon-fly-like indoor models circle nearly perpetually. It's like watching a ballet performed in syrup. Beautiful. Somehow, strive as I might, my own beefy Guillows fuselage jobs just couldn't muster the flight times of those gossamer high tech sticks. Until now. Thanks to my discovery of the Amazing In-flight Rewinder.

Now, I must confess that "discovery" can have many different meanings, depending on circumstances. Did Columbus actually discover America? Naturally, I didn't invent the in-flight Rewinder. OK, I pretty much stole it. I was at one of those half-day indoor contest-and-trimming sessions. I was about to launch my pristine super-light (just 2-ounces) WWII Low Wing 16" ship hoping to beat my all time high of 5 seconds, when one of those F1-C, or maybe is it F1-D?, folks got just ahead of me. This had already happened three times that morning, and each time I politely waited a good 20 or 30 minutes for that wispy poly-mylacrylic chemical contraption to even begin to lose some altitude. I decided to make good use of the time, instead of once again just standing there holding my wound prop for half the morning. While the F1 pilot, who is well known, was distracted comparing his atomic chronometer to his various prior world records, I stealthily tiptoed over to his top-secret high tech laser guided computerized trimming console with all those blinking LEDs and peaked inside one of the carbon-fiber containers. And there it was: the secret of his longevity – the in-flight Rewinder! I could tell with just one glance what it was for and how the thing worked. So this is how those duration guys do it! Well, in this era of inverted scoring, shaved plastic props and leveling the landing field, it's about time we fuselage folks got a real shot at one of those Kanone things. So I think it's only fair to make this bit of arcane wizardry more widely available.

It turns out that the in-flight Rewinder is no more complicated than a Gizmo Geezer combined with the timer action of a De-Thermalizer. The principle is quite simple. Although I have misplaced my technical drawing, you can still follow along.

As the main rubber motor (“A” in the drawing) unwinds, a small portion of the energy is siphoned off by the gizmo (“B”) and stored in a separate mini-motor (“C”) connected to a timer (“D”). Through a small gearing mechanism (“E”), that mini-motor (“C”) is slowly wound as the main motor (“A”) unwinds. Then, when the main motor (“A”) has run its initial course, the timer (“D”) kicks in, the rewinder releases its stored energy to – yes – rewind the main motor (“A”), and the whole shebang starts over again. The entire rewinder mechanism weighs less than 15 grams, which you probably need to add as nose weight anyway, and fits inside even a peanut so inconspicuously that scale judges haven’t seemed to notice how often they are in use.

Just about now all the theoretical physicists on the field (I do see one) will object that such a mechanism would allow for perpetual motion, and therefore must be impossible. But we’re only talking maybe 20 or 30-minute flights. Nothing perpetual about it. And just like everything else in our sport, even ships mounted with Rewinders are subject to the second law of thermal-dynamics – which posits that OOS flights are more likely on summer days on a hot field than indoors.

I’ve carefully checked the FAC rules, and nothing prohibits the use of the Rewinder in FAC contests. Because the gears turn in different directions, the teeth on the clockwise gear get subtracted from those on the counter-clockwise gear, so the gear ratio actually nets out to the permitted 1:1. And the rest of the mechanism is no more controversial than using dual nacelles (whatever they are), a pusher prop (for flying backwards), or a Nason Clutch (which I hear works with automatic transmissions).

The secondary rubber in the Rewinder works better if it is stripped to a nonstandard width, probably metric. That is one reason certain well-known gossamer-stick flyers get such amazing times: they actually own rubber strippers for making the secondary motors for their rewinders. If you’ve ever tried to strip some 1.5 mm rubber from that good-ole hunk of dried up 1/4” that came in the kit using an exacto knife, you know what I’m talking about.

Just as with anything else in this pursuit, there are ins and outs, and experience leads to refinements. My first attempts at whittling the gearing out of balsa weren’t pretty, so now I just use Lego parts. And if you overwind your main motor without using a blast tube, the interaction with the Rewinder has a way of spectacularly compounding the catastrophe. I have had to disguise several models as Bleriot, rather than undertake a complete re-cover-y. But I’ve kept at it, and I’ve been getting some pretty good times flying with the Rewinder on a tiny urban ‘field’ (it happens to be over some of those hot-air grates above a subway line, but you do get used to the noise).

And I’m not the only one. A couple months ago at an outdoor meet in Connecticut, a certain progidi-ous flyer was clocking yet another of his routine 10 minute flights with an embryo that otherwise looked – from the outside – like any

other innocent newborn. But I knew what was up, and he knew. His ship eventually returned to within binocular range, and later landed oh so nonchalantly on the field. I walked up to him, gave him the look we cognoscenti give one another, and knowingly whispered to him: "rewinder, right?" He only smiled and nodded, but that was all I needed to see. Definitely: rewinder.