

# COUNTERFEIT

By Bob Provart

**Here's an out-of-the-rut A/1 glider that performs as well as the standard types. Try one for a change!**

● The morning of the Fifth Annual Flying Wing contest sponsored by the Northrop Model Airplane Club was calm . . . very calm, in comparison to the full preceding week of very high winds. Because of the winds, there had been no opportunity to test fly Counterfeit until that Sunday morning in Sepulveda Basin and I was aware of the fact that I had more than the usual number of thumbs as I rigged the D/T at one minute for maiden test flights. After all, this was my first contest effort in over thirty years and my first *ever* in towline! Hell, I didn't even know if I could still run!

After mentally noting the location of the nearest "Andy Gump" (in case I should suddenly need the facilities), I trotted windward with Counterfeit held aloft . . . feeling the lift. Finally releasing the plane, I mentally crossed my fingers (and just about everything else, including my legs) and watched, with that heart wallop that only airplane modelers can know, as Counterfeit skidded to rest nearly 100 feet away!

Knowingly, I mumbled to a friend (who, I am sure, came to hold my hand in comfort when I made a fifty year old fool of myself) "That was what you call a — uh — test glide." Meanwhile, inside, something was doing backflips and triple summersaults and screaming "Something's there!" I realized suddenly that my throat had strangely and completely gone dry and I asked my friend if he had some gum. He was given some lame reason, like I might need it for ballast or something. His eight year old daughter sort of put everything in perspective by providing a clump of grape flavored bubble gum . . . which I gladly accepted. After all, how are you gonna RUN all day with a towline if you can't work up any spit?

After a million (more or less) test flights, some lousy and some O.K., with various lengths of towline and various adjustments, the D/T was set to 1 1/2 minutes and a full length tow was attempted. A good release was accomplished directly overhead and Counterfeit picked into some nice air. As the wing lazily circled overhead, the field timer shouted "You should have made

that an Official flight." D/T occurred at an altitude higher than release and my wife thought that Counterfeit had fallen apart in midair (she too, expecting disaster). Upon D/T the small fuselage galls away (tied by a length of fish line), unbalancing the model, which then comes down in a tight flat spin.

Aware of the flukes of lady luck, the process was repeated . . . with the same result! So I bit the bullet and called for my first official flight. It was now 10:30 and the contest closed at noon. Most of the towline fliers were on their third or fourth flight (out of six) and so far the best single flight to beat was 2:19 (out of contest maxes of 3:00 minutes).

The first official Counterfeit flight dethermalized at 3:17 . . . almost out of sight. Because chrome Monokote covering was used, Counterfeit would flash in the sun like a camera flashbulb and this kept the timer from "counting out."

The second max did not occur until the fifth flight (three poor launches . . . I'm a slow learner). Even the launch on that flight would turn the knowledgeable A-1 or A-2 towliner's hair grey, as I looped Counterfeit off the towline! (*That's the IN thing now, Bob! ED.*) Almost at a standstill at the top of the loop, and probably because a flying wing usually has a low moment of inertia in pitch, Counterfeit flipped over and commenced gliding at an altitude higher than that attained at towline release.

After a satisfying full day of running (let's see, college track was 28 years ago), I knew I would ache from head to toe with a zillion forgotten muscles. You know, I felt just fine the following day except for one thing. I couldn't eat anything except soup because my jaw muscles ached from the bubble gum. A friend of mine claims it wasn't the gum, but rather, from smiling a lot. And I guess I did smile a lot. Not one other max was flown on that beautiful Sunday by any other towline model and Counterfeit came in with a full score of two (all that was required) for the win.

## DESIGN

With an eye towards "straight" competition, Counterfeit was designed to

AMA specifications for A-1 Towline with 278.2 square inches of wing area and weighing 145 grams, as built, without ballast. The under cambered airfoil has a thickness of 9 percent, although when the constructed wing has been sanded, it is probably closer to 8 percent. The aspect ratio of 13.2 is effectively increased to over 14 by tip plates. (The vertical fin areas incorporated in addition to the tip plates are largely ornamental . . . be my guest . . . as directional control is attained primarily by elevon trim). As constructed, the wing has 25 degree sweep back, elliptical dihedral, and jig constructed tip washout of 10 degrees (which springs back to something between 7 and 8 degrees out of the jig). Rigidity of the wing structure has been graduated to force the effects of dihedral and washout in gradually increasing amounts toward the wing tips.

## CONSTRUCTION

One of the beautiful things about building a flying wing is that when you are through building the wing, you have basically completed the construction. There is only a vestigial fuselage required to locate the tow hook near the center of gravity. (The only drawback I have really observed is that because of the single unit construction and sweep back, the wing is awkward to transport. It takes a lot of space!). A wing dihedral/washout/construction jig is highly recommended, as described on the plans. This jig may also be used for storage and transport of completed wings.

So if you'd like to get out of a rut and try something different — sweep (no pun intended) all that conventional stuff off your workbench and build a Counterfeit. All construction, flying, and trimming information is provided on the plans. ●

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