

## **A VARIATION OF A WING POP-OFF DT**

*By Les De Witt From the files of Ted Ballin.*

*The article originally appeared in the May/June 1992 issue of SAM Speaks., and is reproduced here from the January 2005 Issue of the Bat Sheet, Chris Weinreich, editor*

Most of us have lost models over the years and recall hours or even days searching for that great model. This new concept should be a viable option. The stab D.T. is a fine concept but has its limitations. A long chase can result with wind and a hot thermal, or even no wind and a strong thermal. My Australian Record 200 sq. in. stick weighs only 5 oz. and went out of sight after 20 minutes overhead at Taft. Light weight models have little chance in a strong thermal. When a model becomes a black speck and you can not chase any further with a bike, because you can't keep it in sight, it is a real frustration.

This system still uses the regular stab D.T. In strong thermal activity or wind, just hook the wing releaser rubber band over the fuse. The wing comes off and the tail pops up. The wing is a drogue when rigged properly and allows the model to descend at a reasonable (rate) to avoid damage on impact.

Do not confuse this with the usual system that we have seen where the wing comes off, but is tied at the wing tip with a swivel. The wing comes down with very little drag in a low drag, vertical position, rotating very fast. I tried this on my 8 oz. Chatelain Wakefield. Luckily it crashed in a 6' tall grass. The swivel was changed to the center of the wing with exactly the same results.

My drogue concept has been developing for years. An article showing this on a modern Wakefield was in a 1986 NFFS Free Flight issue. There is a lot more impact when the body separates on the slender, modern fuselage, because it starts falling with less drag. It was working fine and now has been installed in a whole series of Classic O.T. rubber models. It is easier since they have more drag and come down slower with less impact on separation. I still use it on my modern Wakefield too.

The basic answer as to eliminate the swivel and use the wing as a drogue to slow the rate of descent. Locating the lanyard at about 1/3 of the cord is about right. If you place it at the leading edge, it would come down with less drag and more speed. If you place it at the center, the wing rides down just like it was still on the body. It was really a strange sight to see this coming down with the wing riding 9" off the body! This was during a calm day.

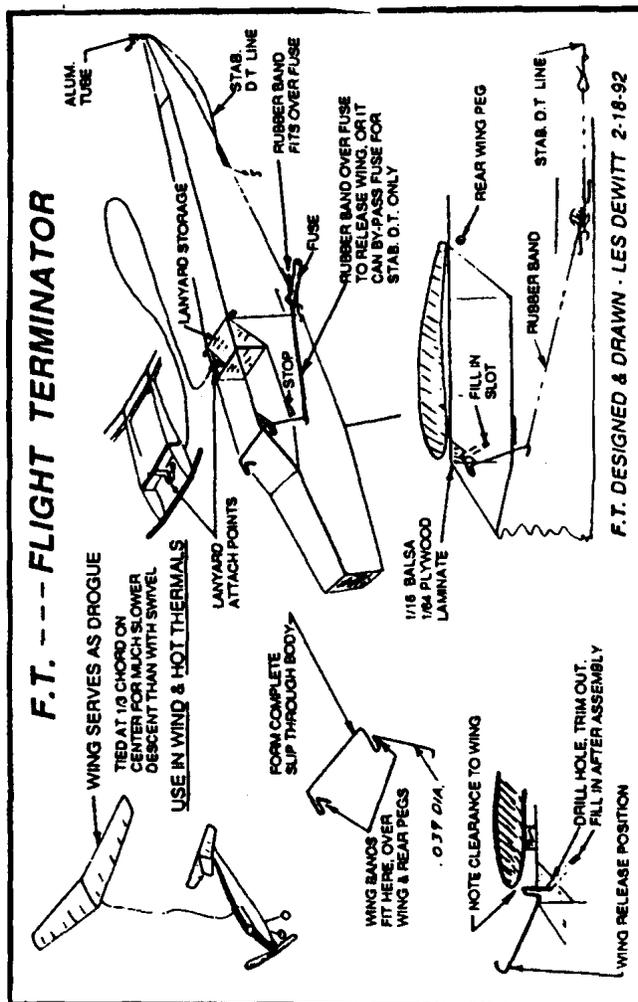
Locating the lanyard near the trailing edge places the weight on the heavier leading edge toward the back and seems to cause more gyrations. The line was also chafing the trailing edge, which is thin and prone to more damage than the leading edge.

It is interesting to watch the model descending through a hot thermal, as it will momentarily slow down now and then, as if you can see the thermal. in calm air, it can remain very steady with the wing looking like a flag or a marker.

**Problems:** The lanyard snapped at about 1,000' with the wing rotating away and the body coming down like an arrow. I tried a shorter lanyard and it proceeded to chew up the rudder. Another time the lanyard slipped through a tear in the tissue and twisted into the unwinding motor during flight. The body twisted into a ball!

The biggest problem has been to keep the lanyard from breaking or the attachment points failing at the fuselage or wing. I'm still amazed at how much stress is exerted when the wing comes off in a hot thermal. It is a greater force on the small cross section Wakefield, as I mentioned. The large cross section O.T. are noticeably slower on descent, but they still come down in a hurry.

**Rigging:** The wire fitting to secure the lanyard to the fuselage and wing should be about .025 to 1/32 music wire, bent in a "u" shape. Push it through the wood bracing and bend over the ends so it can not pull out. Use hard balsa at the stress points. Use 1/32" wire for the one piece wing hook.



The lanyard is made of 1/2A control line Dacron, put up on small spools. The ends must be very carefully tied. C/A on the knot will cause the line to become brittle and break. You can carefully apply it on the ends on the knot to keep it from unraveling.

For 8 oz models, use a double line as only one will surely break. I am planning to try a three line braid in the future. The lanyard should be about 6' to 9' long. The longer line allows the wing to slow down a little after the fuselage lands. I add weight to the right tip for the glide and beefing it up serves a second purpose to aid in the fast descent. I have never broken a wing tip, but always reinforce it on the right side.

The lanyard should be located in a compartment so it can't possibly get into the motor during flight. It can also be located in the center section of the wing. Leave off the covering on one bay

The concept can also be used on the wood runners on the wing mounted above the body, as on my American Record C stick from the 1938 Zaic Year Book. I have this system on 12 models and firmly believe in it.

The lanyard can be wound around two fingers and then stuffed into the compartment. This may take some time but just think of the time in chasing down a plane after it has D.T.'d. It's well worth the effort.

You can depend on the model coming down rather precisely after the desired 3 or 5 minute max. If the contest site is suitable, it should land on the field...It will terminate the flight!

*My 2¢ worth -- I think if I was going to use this method, I'd put a rubber band somewhere in the lanyard to absorb some of the shock when the wing blows off.-- C. W. ###*