

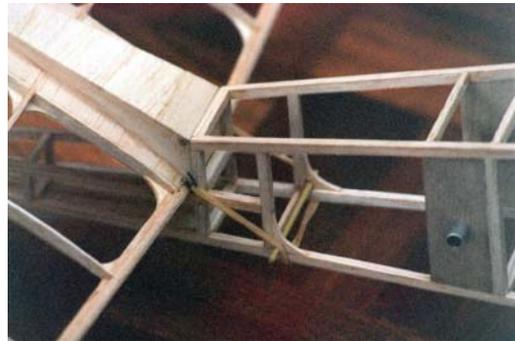
"Le Vibrant" Wakefield by Rene Jossien 1948.

Here is some construction notes related to detail seen on these skeletal photos.

Note the centre section spar supports inserted because I made a two piece wing for ease of storage/transportation. The joiners are piano wire and the tubes are RC Snake outers. The additional spar supports align with the ends of the tubes at the second rib. The baby wheels are turned from box wood, very hard. The U/C legs are reversed according to one plan I saw, because the prop blades could foul the main leg if that was located forwards.



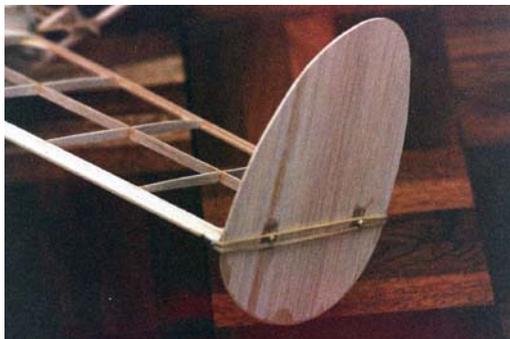
Here, the D/T leverage band pulls the stab forwards and down, to lock its angled front against the upright member of the platform. One or two rubber bands are all it takes to provide both the leverage and the lock into the D/T position. The little bamboo dowel is a slide fit into its holes and therefore removable for repairs/maintenance if required. The 1/32" soft gussets between the ribs and LE (and TE too) add strength and are sanded concave for neatness and to minimize any added weight.



Here the stab is in flight position. Note again the small lightweight gussets for strength. With this fused D/T arrangement there is no hold down or retaining cord. The wire hooks and pegs at front and rear of the D/T system are made of soft iron garden wire (green plastic covering removed) to aid easy bending and adjustment. Piano wire is simply too difficult to adjust in situ. Note the bamboo (kebab stick) insert at the centre of the T/E.



Below, is the arrangement for fixing fins to the ends of the stabilizer. The hooks are soft iron wire and the bamboo pegs locate into holes in the 1/64" ply facing on the end rib. The fin stiffeners are 1/64" ply. Fin trim tabs had to be added at the flight trimming stages. Removable fins are greatly beneficial in preventing transit damage. The stabilizer spends **ALL** its stored life on a former, as do the wings (center panels).



This shows the complete tail-plane assembly in full D/T mode. When built, the D/T was operated by a fuse in the rear snuffer tube. Subsequently the model has been fitted with a Tomy timer, at the CG, with a D/T hold-down line but the line is not used in a retaining function when the D/T is deployed. This is a very secure system and does not accidentally disassemble in flight or D/T mode. Just seen on the inside of the rear motor peg support is a small 1/64" ply plate to prevent long term wear of the holes.



This is the prop assembly in fully folded position. The loose band at the front aids positive folding and the blades are strengthened with ply facings at the root. The nose-block is cross-grain laminations of soft 1/8" sheet. The prop shaft is 14 swg piano wire and the outriggers are 16 swg. Not very clear in the photo is a compression spring on the shaft and a thrust race between it and the nose-block which has ply front and rear facings. The prop stop is a brass wood screw in the rear face acting directly on the hook.



The prop blades are (were) two laminations of dissimilar wood (as can be clearly seen) molded around a 6" diameter stone jar, 15 degrees to the vertical. This eventually turned out to be a big mistake because after about 5 years the blades warped dramatically to cause serious unresolved flight problems. Eventually this was resolved by replacing the blades with carved units. The coup de gras, just about visible, are the bamboo laminated edge protections. Ah, the miracle of Cyano!

Here is the plug-in U/C. The main rear leg is 16 swg piano wire and the front support is 18 swg. The tubes are brass but are buried with an extra spacer so that the heaviest D/T landing onto concrete will not cause damage. Gussets help too. Note that the tip of the blade is just shy of the front support and as such does not foul the U/C when folded. Some versions of the plan show the main leg to the front and because of its forward rake, it was fouled by the folding blade. I found out by making the wrong set first.



The wing is faired at the centre by a removable bonnet. Not seen here, but this was eventually secured by 8 tiny soft iron wire hooks and two small rubber bands. Later in the life of the model, a retaining box just behind the bonnet housed the radio tracking bug. Seen here again are the concave gussets from soft 1/32" sheet between ribs and T.E. and L.E. Note the removable bamboo wing pegs can be varied in position for trimming CG due to the sets of holes at 1/4" intervals.



The centre spar local strengthening supports can just be seen to start from the ends of the wing joiner tubes for maximum effect. For the record, the wing was built in one piece with two 1/8" centre ribs, 1/64" apart, after the complete spruce spar was constructed flat on a board with hyper accurate scarf joints. Note just how thin the designer chose his wing section. For 1948, it's a French thing! The ribs were slid on to one centre section first and the L/E and T/E added flat to the board at that stage. When the first inner panel was complete its tip panel was constructed the same way. Then the other side the same. The joiner tubes, made from RC snake outers, were then let in to the dihedral break, already accurately established. The wings were then separated by a razor saw between the two centre ribs. The two centre bays are sheeted. This method gives absolute accuracy to dihedral breaks and tube location.

To put things into context and to wrap up this essay here are three more photos and a pen sketch of my "Le Vibrant" from 1993 to current.



The photo to the right is from 1996, when "LE Vibrant" won the 1996 Sam35 8oz Nationals with a storming set of flights. She was on rails that year. The snapper sent prints to Rene Jossien in France who kindly endorsed the photo and matched it with a print of him holding his own version. It was indeed an honor to receive his felicitations. The man was, literally, a "saint" (tee-hee!).



The other photo sees me ROG at the 1066 Middle Wallop Eurochamps in the same year. From this table the model flew low and right for 100 feet before zooming. From the ground it does not misbehave. Weird or wot?? Trouble is, at these champs the table was "de rigueur" and with the peri-track infested with cars, choice was limited.

"Le Vibrant" was built in 1993, flew straight off the board and became my model of choice, outperforming "New Look" by a fair margin, but could not handle rough weather (shallow dihedral??). It won and placed in quite a few comps and I even flew it in BMFA Open Rubber, mostly for kicks of course. It never stood a chance in that class.

It always goes out with a 100 gram motor on full chat, 14 strands of 1/4", sometimes 16, multiple corded. After 5 years of world domination it mutated into a beast. It had a mind of its own, unpredictable and practically un-flyable. I tried all sorts of trim changes and got nowhere, it just got worse and worse so I consigned it to the back burner in frustration. I tried occasionally to re-trim it but carnage always ensued, until 2 1/2 years ago I tried once more. This time, Ted Challis of our Crazy Rubber Band noticed that the prop blades had both warped quite dramatically with a serious increase of pitch at the tips (about 45 deg tip angle - blimey??).

This had completely gotten by me. I guess there are none as blind as those who don't want to see. On the field I bent the blade outriggers for a partial cure and, yea verily, the problem was immediately "in solution". The blades were laminated from dissimilar density blanks and over time they had become unstable due to either moisture or shrinking dope and pulled right out of shape. Both the same and unnoticed for all that wasted time. When I think of the 6 lost years I get quite cranky.

Back home I carved a new set of paddles based loosely on the "TOTO" blade and did some encouraging basic trimming on a calm day at North Luffenham. Going for broke at the Odiham 2004 Spring Gala I again gave it the "Full Monty". Jeez! It fizzed off the tarmac for all 3 ROG's and won the competition by a country mile. 2 weeks later at the Nationals it did the same for the first 2 flights but caught a massive hole in the third, dropped the flight by 1 second and missed the fly-off.

At this year's Nationals, poo happened again, but with pilot error. I had been recording some motors and had under-wound the cording turns. At the end of an impressive 80 second prop run and 60 seconds of perfect glide "Le Vibrant" verticated (undamaged) from a prodigious height into grassy firma. Because it was a windy day, it was too far down range for me to figure out exactly what happened. So undaunted and unchanged, I went for the second flight, but this time the prop block was seen to dislocate and the spiral high speed vertical glide from a perfect climb-out lasted about 2 seconds. It just dropped a wing and bingo! When the problem was corrected, a third flight maxed with ease. Don't you just hate pilot error?

So! What is it about this beautiful airplane that makes it a rarity on the flying field? One hardly ever sees another one and considering its potential, this is quite a shame. I think the reason is its potential vulnerability to damage if built with that very thin one piece wing and fins fixed to stab. As seen from my notes, it's possible to overcome those vulnerabilities. Would it also be so much better if pilot error could be so easily eliminated?

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