Wellington RCM&E Editorial

The Wellington as a war time bomber was always somewhat overshadowed by the heavier bombers, notably the Halifax and Lancaster but at the beginning of World War II it was one of a very few bombing weapons, Bomber Command had and was the first bomber to bomb Berlin. The reaction that ultimately turned the Luffwaffa away from bombing our beleaguered fighter stations to retaliate on the British towns and cities. Ultimately this gave the fight stations time to recover and continue the fight.

The Wellington had it place as a light nightime bomber and under its maritime roll at coastal command was a very effective anti-submarine aircraft, an continuing as search and rescue aircraft until well after the war had ended.

So as a model, the Wellington again seems to be overshadowed but certainly not in my mind. This is the second Wellington I have designed and continues a 15-year love of the aeroplane. Back in the 1990 I designed a 65” version for electric power, which at the time was a real challenge but so successful was this model in performance with early 400 brushed motors and 1200 SCR Sanyo cells that it cemented my belief that electric power was the only way to go and that advancing technology was only going to improve things.

So those canny modellers may have noticed in the photographs an exhaust pipe or two and carburettor poking from the cowls….so have I become a harden petrol head all of a sudden?....well I tell you the reason later!

The design of this Wellington started as a commission from Tony Hooper, the Large Model Association’s (LMA’s) Chief Safety Officer. Tony wanted a 19-foot model designed and the parts, CNC cut for him to build as a winter project. As the Wellington was a particular favourite, there really wasn’t much convincing involved.
The plan was, that I would build a smaller version to test the design works before risking a 19-foot version. Now if I was a little more sensible I would have settled on a nice 70-inch version for electric power, but being sensible is really not my thing, so I decided to go a little over halfway and plumb for a 13-footer, which strangely came out to around the 1/5 scale mark, the same scale as my 17-foot Lancaster. As a consequence, the front and rear Lancaster gun turrets would fit the Wellington a real treat….always looking for sort cut in the building process don’t you know. Although a 13-foot wingspan is large, it dose have some benefits. Larger models because of their size and weight are more stable in the air, the choice of power plant using either glow, petrol or electric is a real benefit and lastly it goes in the back of an estate car…well admittedly the fuselage does sit with nose pressed against the passenger side windscreen.

The target weight was designed to come out at well under the 20kg (44lbs); the significance of this is if a model weighs over this figure, the model has to go through the CAA/LMA over 20kg approval scheme which means airframe checks, double redundancy with the on-board radio system, and finally a series of ‘behind close doors’ flying tests before the model is pronounced fit for public events. Quite a procedure and one which, if can be avoided, will make life easier.

The original plan was to build my version for electric power, which meant 60 plus batteries (30 per motor) and a pair of the largest AXI motors and speed controllers to boot. So the plan was drawn at 21-foot and then scaled down 13-foot and modified for electric power. The build finally started in early October last year and in truth if I put my single minded efforts towards it, it would have been finished before Christmas. But a new 72 inch Lancaster, a dog fighter double Corsair and Mitsubishi Zero got in the way (look out for these in the coming months). Now all seemed to be going swimmingly until February when at 90% complete, I had a sudden change of thought. Now having experienced the large electric Lancaster for almost two flying seasons and seemingly becoming a slave to charger telling me when I could and couldn't fly, I decided I was going to enjoy this model and fly it on my terms; just fuel up and go. The other reason that tipped the balance away from electric power was the cost, which would have topped the £500 mark, minus the batteries!

So not having dabbled with petrol engines for some years , I ordered myself a couple of Zenoah 26's and proceeded to beef up the nacelles and remake the engine mounts. Whatever you may think to the contrary, an IC engine installation is not as simple as electric. Space for the fuel tanks had to be found, throttle servos added and set-up and what seem like a lot of hole, cut in the cowl for exhausts, carburettors, spark plug…..you get the picture!

Anyway I pressed on with the conversion and by early March the model was ready for covering.

Construction.

The fuselage was built as an open framework in two halves (left and right) and then joined together before 6mm sq balsa stringers were applied across the formers. Because I hadn't notched the former to accept the stringers locating them and achieve a true straight line along the length did prove time consuming. Also because the stringer were only glued on one edge, they regularly got knocked and became broken or un-stuck. I overcame the frailty by lining the inside edge of the longerons with another length of 6mm sq balsa between each formers. As you can imagine gluing some 300 odd extra pieces was really a gut wrenching experience and week of evenings I would rather forget. In hind sight, what I should have done was to sheet the whole fuselage in 3mm balsa, which would have given the fuselage rigidity and then use 6mm by 3mm strips to achieve the effect of the raised stringers over the geodetic construction

Now as most of you may know, the Wellington was constructed in a criss-cross geodetic structure and fabric covered. The geodetic was noticeable through the fabric particularly through the wings, fin and tailplane. Now if you are going to build a Wellington it is worth going that little bit further and making this detail a real feature. This could have been done after the covering stage with strips of tape criss-crossing the structure but I decided to build the effect into the structure. This was done by building the wings, tail and fin as a conventional ribbed structure, fully sheeting the wing with 2.5mm balsa and then applying 1.5mm x 10mm wide strips of balsa over the sheeting. The strips going in

one direction were laid first and parallel spaced at 40mm apart. When this was done the difficult part of producing the crossing effect was started. This was done by cutting literally hundreds of balsa strips 40mm long and gluing them between the parallel striping, not a job to be taken on lightly, but the overall effect was definitely worth it..

As the model was effectively an open framework, covering on this scale was going to be limited to either Solartex or nylon and dope. Not being a great favourite of Solartex on scale models because of the wrinkle effect in warm whether, I elected to go the nylon route. Before apply the nylon, the structure need to be sealed with sanding sealer. This allow the nylon to be put on 'wet' without the airframe absorbing the moisture from the nylon and allows you time to smooth out wrinkles. Dope is then applied to the edges as a glue and allowed to dry. As the wet nylon dries, it actually shrinks. The result is a surprisingly taught drum like finished. So impressed with this finish that I decided to use non- shrinking dope. After three coats the Wellington was ready for painting. Now when it comes to colour schemes, I like to be a little bit different, so I decided to do a slight variation on the coastal command colour scheme, which I hope you agree, does give it that touch of uniqueness. The paints used were Flair Spectrum colours, dark green, dark grey and a light grey with 50% matt white added.

All the decals were hand painted and the nose art was pull off the web as a .jpeg file and printed on to clear self-adhesive film.

The retracts and oleo leg were made to measure by Tony Goodyer at Unitract, superb system designed by a talented engineer.

To control the model I decided to fit two receivers, two sets of RX batteries and split the system so one receiver operates one aileron and one half of the elevator and the other receiver, the remainder. The idea of this is if one receiver fails for whatever reason you effectively can retain half the control of the model and avoid an uncontrolled crash. That's the theory anyway. There are five main controlling servos, each rated at 8kg torque and six auxiliary Futaba 148 servos doing the rest

The model is only 37lbs and the wing loading is quite light so flaps are not really necessary. The model also has opening bomb doors, and retractable landing lights.

The first flight was at the Hastings MFC club field and the usually 15-knott wind was blowing straight across the runway. So the model was ground checked and found to handle extremely well. On opening the throttle she pretty well leapt in to the air after a few feet and was climbing with great gusto. By the end of the first circuit I had concluded she was tail heavy with far too much control movement.

The power from a Zenoah 26's is equivalent to a 120 4-stroke or a 90 2-stroke glow motor, and have to say that the model is overpowered. Nothing more than quarter throttle was needed to fly the model and meant that with 35oz tank I had at least 30mim flying time.

By second flight with 2lbs of lead added to the nose and the control throws reduced by 50% all round, she was now an absolute dream to fly. Even in the cross wind she was felt comfortable and goes just where you point her, almost trainer like qualities.
The models at 37lbs is very lightly loaded and to get the best and most scale performance out of her, the Welly is best flow in winds of less than 15 knotts.

The target weight of 37lb should be easy to achieve, but if you find the weight creeping up to 40lbs or above, the models should be capable of dealing with extra weight with the same engine set up, and indeed may prove more stable in stronger wind conditions. Remember though, above 20kg (44lbs) the model will have to be registered under the LMA's over 20kg Scheme.