Flying
in-formation

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Secretary's Scribble

This issue sees the release of the Bulldog saga, and also Roger Brown's visit to the Antipodes. Not much room for anything else, really. Thanks, chaps, for your input.

We have a lot of events taking place this year. Keep an eye on the website and notice board. In particular, make sure you are at Standens Barn on 30th March to hear Al Maschinchi's talk on gas turbine powered models. Ed

The Gibbins Bulldog, the full story

14 March 2006 - Decisions

Summer 2005 and my wife and I were in a dilemma. We had both retired and were not sure whether we would be downsizing or not, in the end we chose to stay put.

This of course put a great strain on me because I did not want to start any major building project just in case I didn't have a workshop to go to, either for building or storing my existing fleet of planes.

Once the decision to stay had been made I could not wait to start cutting balsa, but what to build as the next big project. Enter the Bristol Bulldog.

Some of you will remember about 10 years ago I had two 1930's biplane fighters, Hawker Fury first then Bristol Bulldog. Denis Bryant from whom I had purchased the plans and glass fibre cowls had designed both models. Both of these planes flew very well, the Fury initially with an OS 90 four stroke until the head disintegrated (100 foot loop starting at 99 feet 9 inches).

Meanwhile the Bulldog was in build for which I bought a Laser 70 and put that engine in the Fury as a stop gap until the Bulldog was finished.

The Bulldog remained totally IC powered but I did experiment with the Fury to try to fly that with electric power, I had one of the rare earth magnet motors and with 16 cells did manage to get it to hop, skip but not jump off the ground. Battery and motor technology was nowhere near to what is happening now.

I decided to go all electric and sold both of these planes but have since regretted the decision.

So my major project for 2006 was to rebuild the Bulldog, unfortunately I had given the plans to a friend who then promptly retired and sold up and moved back to his roots up North, I did have a phone number for him but as always I put it on a scrap of paper and immediately lost it so I had to acquire a new set. Denis Bryant no longer supplies his plans but RCME took over the plans, without the cowls, and that is where I placed an order.

Some of you may know that the publishers of RCME, Highbury House, were in financial problems but have now been bought out and so from placing my order in early December 2005 to getting the plans took 3 months.

So what am I changing from standard?

1. The motor will have to be one of the big AXI electric motors as advertised by Puffin models instead of 70/90 IC motor.
2. The fuel tank will be replaced by Lipo batteries just behind the firewall, this is a very tight area and needs a couple of stringers moving for access. The top area is about 75 X 100 mm but quite deep so when I finally order the batteries. The cross section will determine the voltage and amperage that I can store.
3. I could of course build in a fixed battery but I am not happy with that so will have it removable.
4. Bulkheads etc that would normally absorb the vibration of an IC motor can be pierced for added lightness.

18 April 2006 - Fuselage

I have now reached the stage where the basic fuselage shape has formed and boy, was there a lot of building.

Normally when building a square fuselage you just lay out the two side pieces and then add some cross members and perhaps some curved formers for the top, not so easy with this one.

The main fuselage sides were constructed on top of each other to ensure consistency out of 3/16 balsa, sheet at the front and strip at the rear.

The main formers were then cut out of 1/8 ply to give strength to the firewall for engine mounting and for the wing mounts. I then epoxy glued these four formers in place and jigged the whole lot in a bench vice to ensure that all was square and true.

When set and still in the "jig" I joined the rear ends together using various long rulers, clamps etc to ensure that it all stayed true.

The various outer former shapes were then cut out of different sizes of balsa and ply.

There are 4 rear formers and each former consists of 4 pieces, top bottom and two sides so you can imagine the amount of time involved in copying from the plan, cutting out and fettling so that everything fits.

At the front end, the top of the fuselage detaches with the wing and so only sidepieces were needed to attain the shape.

The rear end is all stringered so all of that effort is covered up. The front end is sheeted with balsa.

Before sheeting the front end there were two more jobs that had to be done.

Firstly the front undercarriage legs have to be inserted and fixed as in the real plane they exit nearly 1/3 of the way up the fuselage. This is no problem except that whatever work you subsequently do on the plane has to be done around this chunk of 8 gauge piano wire; fortunately it does swivel at this point. The rear legs will be soldered on at a much later time as these use a normal wing bolt to hold them in place.

The other issues at this time are the fitting of the 1/8 ply lower wing locators and ensuring that these are fitted square to the fuselage.

I have lately been working on the upper wing fixing. This consists of a section of the upper front fuselage, just forward of the cockpit, to which the cabane struts are permanently attached. These cabane struts are also permanently attached to the upper wing so some interesting jigging will have to take place when the time comes.

The example at Hendon has a nine cylinder radial engine and in the last few days I have carved a blue foam blank from which to lay up some glass fibre as a sub cowl and then find some way of making cylinders and fins etc, that will come under "finishing".

The last piece on the fuselage is that the plan calls for 4"3/8 Williams Wheels. On the original versions I bought these from Punctilio models at Hinkley. Needless to say these are American made and no longer distributed in the UK. For some months I have been trying to find them on the web and finally I have succeeded, Hopefully before too long a pair will be arriving.

19 May 2006 Top wing

The wheels have now arrived from America and they are gorgeous, well worth the £18 that I had to pay on the credit card.

I have not done much building over the last month, I had shingles for a week which cleared up much quicker than everyone told me that it would however as soon as I was getting over it I got another virus which laid me completely out for another ten days, I am OK now and have restarted the build.

I have been building the top wing and that is a marathon.

If you think in terms of an ARTF you get about five pieces in a wing, two panels, two ailerons and joining tape.

Very sad I know but in the Bulldog there are so far 120 separate pieces of wood and I have not yet made the ailerons, there will probably be another 50 pieces in each aileron.

The build of the wing is not particularly difficult as long as you study the plans beforehand to completely understand what is wanted. It is however very long winded as with over 160 individual pieces to cut out and stick together that takes some time. Being retired helps as I can go back to the build several times a day when the previous part has set.

I am going on holiday next week so have decided to put a stop on the wing until I come back. Just to fill in the time I have been experimenting with trying to make the engine. The original had a 9 cylinder radial engine that is exposed and I have been trying to replicate the cylinders.

I don't have a lathe so turning is not a very good option, I have done it before using a cordless drill with a bolt through the piece and turning against a large sandpaper drum on a mains drill but that was for a one off. 9 off was never going to work. I also tried this method to turn a blank out of blue foam but this was unsuccessful so I have chosen the difficult option.

I am slowly cutting out discs of 1.5 mm balsa at 32 mm diameter and am also cutting out discs from ABS sheet at 35 mm diameter. These are glued together alternately to reach a height of 35 mm.

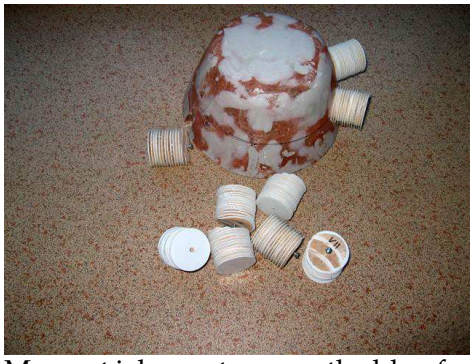
The balsa at the smaller diameter represents the cylinder and the ABS represents the fins.

There are 14 balsa discs and 14 ABS in each cylinder and with 9 cylinders that means 252 discs in total. I have a small set of compasses that have a cutting blade instead of a pencil and this is how I cut them. I have cut three cylinders so far and my fingers hurt like hell so I will stop for a few days.

23 July 2006 – The dummy engine and cowl

Holidays, we had a week in Austria and 2 weeks after we returned we took the caravan for another two weeks to Scotland. Scotland in the summer must be heaven for model flyers; it stays light until 11 pm. We have also had some glorious weather and so I have been getting in some stick time instead of building, actually my workshop faces south west and has a very large window so it does get rather warm.

Those are my excuses for not doing much building lately, however we have had thunder storms today and it has cooled enough for me to virtually finish the top wing for covering.



I have counted the number of individual pieces, either wood or brass or whatever material was used and the total count came to over 420.

I have also glued the 28 discs together nine times to form the cylinders, they do not look very neat at present but when they painted matt black I don't think that minor discrepancies will be noticed. Like all things that you make you know what is wrong but when others look at it they do not see the problem.

My next job was to cover the blue foam plug with glass fibre and resin to form the cowl. Even though I am not very good with glass fibre the final result is not too bad. A lot of work was needed to level off the glass fibre and then also a lot of filling needed to level it all off but once again a covering of matt black paint and you won't see the blemishes. After making the cowl and fitting it in place I realised that I needed to have some cut outs in line with the guns, I cut two slots with the Dremel and used two 5cc syringes which were of the correct diameter and then glassed around them.

21 September 2006 - Lower wing

I have been busy. I have now made the lower wing and that was much easier than the top one. Shorter wingspan, identical ribs and no ailerons. The final result is that this wing feels so much sturdier than the top one. The model is designed with thin wings as per the original and as such cannot be flown without fully rigged flying and landing wires, the top wing certainly gives the impression that these wires are vital, the bottom wing feels much stronger and would probably survive without the wires.

I have also now made the tailplane and elevators, very straight forward, also the fin and rudder, again no problems.

Because I can add the tailplane and fin after covering I have sanded the tail feathers, treated them with sanding sealer and again sanded them to a smooth finish.

I went with the club to Much Marcle to see the flags flying, it was too windy on the Saturday for anything else to fly. Whilst there, I bought two rolls of silver Solartex and have covered all of the tail with it and it does look good.

Whilst on the coach to Much Marcle I asked Ian Peacock about masking areas on a non flat surface in readiness for painting and one suggestion was to paint the surfaces before covering. I did try this on half a yard of silver Solartex that was left over from a previous model, it did not work so it is back to masking up over complex curvatures. I masked up the rudder and used car aerosols to paint it, firstly with grey primer then a white band in the centre, a mask was then put over the white and the edges were sprayed with white so that if there was to be any paint creep it would be white over white. Red paint was sprayed at the front and blue at the back. The result is very pleasing.

What colours did I use? Well I went to our local auto shop and looked along the racks to choose a red, white and blue, they just seemed nice colours to me. (Don't tell Ian how I chose the colours)

I have also painted the wheels, red on the outside, black and silver on the inside. To mask the wheels I cut insulating tape into thin strips as this material will bend without crinkling; beyond this thin strip I used normal masking tape.

I will be covering the wings and rear end of the fuselage next, the front end is metal skinned and I cannot decide whether to cover in litho plate or, as I have been experimenting this morning, with using kitchen foil. This material is a bit thin so next time I am in Tesco I will see if they have some just a little thicker. Litho plate is fairly thick and is therefore not easy to handle, it also has the disadvantage that it needs to be polished from a brushed finish.

I have now assembled all of the cylinders for the engine so it will now be down to me how far I go trying to replicate the Bristol engine.

25 October - Covering etc

Pauline suggested that when she was next in Buckingham she would buy some aluminium throwaway cooking trays that she had seen so off she went and brought back 5 trays for £1. They were a perfect material for covering the fuselage, thin and soft enough to work. Unfortunately they had been pressed into the tray form so I got my wallpaper roller and a sheet of plate glass to flatten them, I think they look acceptable. They were then stuck onto the balsa sheet using normal impact glue.

I have now covered the whole of the aircraft with the silver solartex and had no problems. The fuselage was sprayed with the decoration using frisk film for the mask which has to be well pressed down to get a perfect seal. Too late I know but one day when I was walking the dog past one of the workshops at Turweston I got talking to one of the aircraft sprayers and his tip to get a good seal is to use what he called lining tape, he gave me a roll to try, but then to use a little heat to get that extra seal. I have now tried it and it does work, my way was to use the iron on the lowest setting and lightly touch the edge.

I will be ordering the motor in the next day or so so that I can cut the cowl to fit.

I have put off the fabrication of the motor but cannot leave it any longer so back to the workshop for more head scratching.

All that is now left is to finish the motor, make the interplane struts and put fairings on the undercarriage legs, also the flying and landing wires.

December 2006 - the final push

The modelling of the engine was the constant thought as I was building the model and when the main construction was finished I had to tackle the 9 cylinder Bristol engine.

As I have mentioned before I tried several methods of making the engine and cylinders but finally settled on the most time consuming way.

The crankcase was first formed out of blue foam, covered in plastic (actually a Tesco carrier bag) and then using fibreglass and resin, covered the outer faces and left to set. This was sanded down, filled and finished and when painted looks good enough for me. As I say this is a 100 foot scale model. 100 foot away and you cannot tell the difference.

The cylinder rings were cut some months ago, ABS plastic at 38mm and 2mm balsa at 35mm diameter. Stuck together alternately they make a fair representation of fins standing proud of the "balsa" cylinders. The rocker covers are vac formed from ABS plastic.

The exhausts are made from electric cable with the centre cores removed and with hot melt glue squeezed up the middle to keep the shape.

The motor has now arrived, a Vortex 800 watt brushless with a 60 amp speed controller. I was advised that to extract the maximum amperage I would need an 18x8 propeller. Fortunately when the aircraft is sitting level there is about1 inch of clearance with this prop.

I will order the batteries in the spring as I have no intention to fly anything let alone the Bulldog until then.

The interplane struts have been made and the flying wires are connected and that is the end of this project.

It will now be dismantled and stored so that a small Spitfire can be made.

2nd March 2007 Maiden Flight

How ironic that last night I was waiting for good weather and lo & behold this morning was perfect for flying.

I rigged the Bulldog at home as I can get the plane into my car fully rigged and took it to my flying site, as you can see from the photo there is an abundance of concrete around so wind direction does not matter.

Initial run up of the motor did not give much thrust so I knew the flight would be marginal however I did not give up and took off. As I suspected the power was even worse than I expected, I wallowed around for 4 circuits then decided to land after 3 minutes.

Initial thoughts are that the CG is too far forward and will have to be moved back, at this stage I could add rear weight but will also look to relocate the radio battery and perhaps receiver as far back as possible.

The elevator has always been a concern as it is not positive in action and will need major surgery to stiffen it up. I put off doing this before but I will now bite the bullet and get on with it.
As far as power is concerned this is fairly easy with electrics, you just keep on increasing the size of the prop I hope.
I will be going to the BEFA show at Leamington on Sunday and will pick up some larger props then.

John Gibbins

Roger's trip to Oz

Whilst on holiday in Australia in October last year, and driving north of Perth in Western Australia I screeched to a halt when I saw a sign "THE WEST AUSTRALIAN MODEL CLUB".

Intrigued, I followed the single track metalled road through half a mile of typical sandy scrubland until I arrived at what I can only describe as an oasis of aero modelling. Here was an area about twice the size of Buscott's Lodge, formally laid out as a perfect model flying site.

There were two main runways in the traditional Y configuration smoothly tarmac-ed and even a narrow peri-track! On the edge of the peri-track was a line of covered pits long enough for about 50 models to be made ready. The covering was necessary as the temperature for most of the year rarely is below 90 degrees!

Behind the pits was a small roadway to allow you to transport the model to the pits by car and behind that the clubhouse with sofas, TV it was more like a hotel lounge.

To the side were swings and slides forming the children's' play area, a toilet block and even a small building for storing fuel, peg board and other equipment.

There's more!! Behind all this were two control line areas, one a concrete circle for team racing and another grass circle with a concrete central area for other types of control line flying.

The Club has about 100 regular members and many visitors from all over the state of Western Australia (twice the land area of the UK!!) at irregular intervals. They are very much part of the local community and hold air shows at the site for charity.

Believe it or not all these facilities are provided and maintained by the local authority and form part of a huge leisure park including a safari park and motor museum.

With all these facilities on a Wednesday afternoon there were only 2 people flying, one R/C and one control line. I was surprised that the R/C flyer was alone as the control line man was at least a quarter of a mile away. He said there were no club rules to prevent him flying alone and saw no risks! This member had just moved to Australia from Zimbabwe and he said he was used to risk!!

So there was the perfect club..or was it?. Would you want to fly in 90 degree heat and constant sunshine every day. I wouldn't .

Roger Brown

That's all folks