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Dates for the diary

(see inside for details)

February 13th – Quiz night –

March 20th – Model Night –

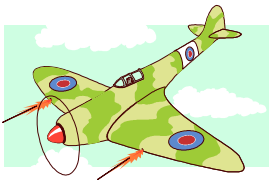
April 10th A.G.M.

May 8th – Social Bell Pub

June 12th – Electric Flying & BBQ

July 12th - Scale Evening & BBQ

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Editorial

Mick Saxton

This issue we have a new column by Richard in “Scale Matters” in which he details his latest projects. I was slightly surprised that he not gone into more detail on the demise of his Demoiselle which featured on the front cover of the last issue. I saw it make its maiden flight and it really did look nice, unfortunately it fell victim to a Tx battery failure and by all accounts there was nothing left to rebuild – even the pilot was broken.

I know there are a few more scale models under construction that do not get a mention; probably because they seem to be taking an incredibly long time to build. My Mosquito falls into this category; it was a veneer over foam type kit with lots of plastic mouldings which don’t quite fit as expected; work is still progressing and a test flight should take place in the spring at which time I will decide whether it is worth fitting retracts and finishing the painting. I have also got a nice looking Sukhoi 31 waiting for some better weather, the test flight a few months ago was very promising – apparently though this does really count as a scale model as it was an ARTF.

I also asked Ken to write a few words about his Jet engine that he has been working on over the last year. What really impresses me about this project is that Ken’s engine has been scratch built, not created from a kit of almost finished bits. Ken has brought it down to the field a few times and it always creates interest, the amount of thrust seems to improve with each modification and I can’t wait to see it flying.

As some of you are aware the latest threat to our field comes in the form of mobile telecom masts, several objections were lodged by members of the club against the current proposal; we also had support for our view from the MVDC Parks dept. Now we can only wait and see what happens. Whilst I was investigating this issue I came across the following recommendation (BMFA handbook 2003 page 18 para. 3) this suggests wrapping your receiver in foil to prevent interference from microwave beams. This could well help those of you that have experienced a glitch on the other side of the river.



Gardening Tools Officer



Chairman's Meanderings

Ted Dalley (Chairman)

We have a shiny new peg board which now includes all the currently available frequencies. The pegs are all on the right hand side of the board; this is the perfect time to upgrade your personal peg with your name and frequency clearly marked. A severe wrist slapping will follow if you wander off with one of the new pegs. The TX frequency checker is also attached to the new board to provide assurance that peg and transmitter frequencies coincide.

The hedge on the North end of the North South runway has been reduced in height with benefits to that approach path. Thus far it has saved at least one dead stick landing from a spiky arrival. Thanks to all those who brought weapons and got stuck into the felling, not forgetting the magnificent tea maker nor the Safety Officer and the difficulty he had persuading the constabulary that a machete is a gardening tool rather than an offensive weapon.

The autumn wind and rain brought a branch down on THAT oak tree and the river up. Unfortunately it was not the branch we wanted to loose and we should have bought a diving suit rather than waders if we were to continue pruning on the river bank. Mind the twigs when coming in over the river, they are a lot less visible without their leaves.

We had a good turnout when we were kindly invited by the Epsom Club to hear an enjoyable presentation on the Schneider Trophy. A vision of an S6B racing the swans on our runway came to mind. I really must dust off my Puddlemaster.

Our local friendly farmer's father is a bird watcher. Big red bird was carefully extracted from tree, model and relieved/delighted modeller reunited. You do have an address label in your model don't you?

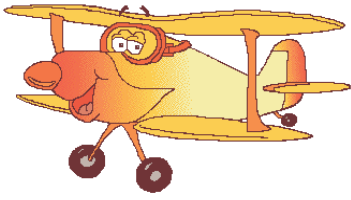
The Electrafly (88 inch powered glider) is prone to Dutch roll with any more than the most gentle rudder input. Reducing the dihedral by substituting the piano wire joiner with a gash bit of straight pipe was tried. This showed both that a flat centre section is no bad thing and, following the first sharp turn, that the model is also flyable with huge dihedral. Future flights will be conducted with a modified piano wire joiner! Just 'cos it fits don't make it fit.

The free plan Hunter flew for me rather less well than a wet slipper; with a bit of team work it finally got high enough to demonstrate how difficult it was to fly. Clearly the designer knows something we don't, we are still trying to figure out what that is.

The Pico Stick is good fun and, with its rubber spinner, it bounces well. The Wattage Sporty using the same gear is a lot quicker and also hard to break. Two mottos:

- A) reversed controls reduce flight duration, therefore label the model with the TX settings,
- B) double sided tape retains servos less well when applied in the cold!

Dust off the old models, build the new ones and don't forget to pay the subs.



From the Secretary's Cockpit

Mick Saxton (Secretary)

Another years flying is behind us, we did lose many weekend flying days due to bad weather and recently the rain and mud has deterred even the most dedicated flyers. Do remember though that a good frost allows us to drive on the field and keeps the footballers at home on a Sunday morning.

Despite the unpromising weather forecasts the summer electric flight BBQ went ahead and the evening was again a great success, every year the popularity of electric side of the hobby increases. It is now easier and cheaper than ever to put together a performance electric model, on a flights per pound basis my Twinjet must be one of the best buys I have ever made.

A first this year was the Scale evening, to make sure that we had more than two or three scale models to watch, some friends were invited along as guest members and there were some very nice models on show.

The recently added page in the new members pack has apparently pushed it over the weight limit for a first class letter, I am now aware of this problem but apologise to anyone who had to collect his or her pack from the Post Office and pay 99p for the privilege.

Last July I spent an interesting day as a parent helper at Robert's school (H of E) during the activity week. The event had been organised in conjunction with the Elmbridge Club involved a each member of the group building a BMFA dart; during the lunch hour there was a display of R/C aircraft on the King George V playing field. The day was very well received and will probably be repeated this year, I guess I may be helping again but I certainly couldn't be a teacher!

This year I sent out the renewal notices by email, followed a few days later by paper copies to those who hadn't responded in a timely fashion. As expected several of the email addresses that I held are obsolete and members who do not use email for business purposes don't read it often enough to make this a reliable form of communication. I haven't given up hope on this yet as it removes the job of stuffing envelopes and would make my job easier. So if you do have an email address that I don't know please forward it to me; by email please, I can't remember it if you tell me down the field.

The club website has now moved to <http://www.leatherheadmfc.org.uk>, unfortunately it is still the same old content although I have updated some of the membership information. With the old site on freeserve I could only update the site via dial in modem which was incredibly slow, now I can do it on a fast connection so maintenance should occur more frequently. The intention is to extract interesting articles from the club newsletters and make them available to a wider audience via the web. Any contributions or suggestions would be very welcome.

Club News

BMFA Achievement Scheme

Congratulations to

Ron Rogerson

and

David Snape on passing their "A" tests.

Please remember a frequency pennant indicating your channel number is mandatory when flying at our field. Not displaying a pennant could be a failure when you come to take your "A" test.

Geoff has made a new peg board complete with a set of bright orange pegs for all of the new frequencies. The Club's frequency checker is also fitted on the board. Please make a habit of using this to double check your Transmitter (ARIEL DOWN) every time you arrive at the field.

Most models seem to be operating within the clubs dB limit at the moment, probably as a result of better muffler design by the engine manufacturers; however, so that everyone can see how the noise meter is used, we will be doing some spot checks in the near future.

Special thanks Mike McKinder for his help with training especially on the Wednesday and Saturday sessions.

The shed will require painting this year; we have a few more bushes to trim. Frank will be coordinating a working party so please volunteer if you could possibly help. Also if you have any hardcore you want to get rid of it is always needed for the entrance to the field.

As well as our club events listed below, members often make trips to some of the model shows; if you would like to lift share for one of these events have a word with Ted who normally coordinates this.





Forthcoming Events 2003

A fairly good lists of dates for your diary.

Thursday February 13th – Quiz night – Mick's house

The club will be providing prizes for this event, so come along and test your knowledge.

Thursday March 20th – Model Night – Eastwick School Hall, Bookham

Please do bring along your latest models – we do not only want to see potential Concours winners.

Thursday April 10th A.G.M. – Eastwick School Hall, Bookham

This is the most important evening of the year please do make the effort to attend. As usual there will be a raffle and time for general discussion afterwards.

The entrance to Eastwick School is from Eastwick Drive which is just a short distance along Lower Road from the Anchor pub.

Thursday May 8th – Social meet at the Bell Pub, Fetcham

Thursday June 12th - Club BBQ and Electric Fly-In

This evening will be arranged along the same lines as last year, flying from about 5:00 pm until late. Your committee will provide the BBQ and fire, please bring your own food to cook.

Wednesday July 12th - Scale Evening & BBQ

Same arrangements as last year – if you have friends who own an interesting scale model this would be a good chance to invite them along.

LMFC Pylon Team

Those of you who read “Model World” magazine will have noticed that Robert and I have had a successful season at the pylon racing competitions. In what seems to be a very short time Robert has mastered the art of flying accurate left hand circuits and is now one of the leading contestants in “Sport 40 Class B”.

At the start of the season it was intended that Robert would race in the “Quiet Quickie” class which was originally a very nice introduction to pylon racing. At the first meet of the season it was clear that my 1999 models were way off the pace in this class due to the previous seasons rule changes. At this point we could have gone out a reequipped with

the Irvine 46 and Weston minipipe which was now the competitive setup but number of contestants in this class was dropping off and I had severe reservations about the Weston minipipe having witnessed several fatigue failures.

In the garage I still had my “Sport 40” models from previous years so these were dusted off and radio fitted the fact that we still had the old motors was not a problem as I had doubts whether at this stage Robert would cope with the speed of the newer models. I need not have worried; in reality a properly trimmed race model is easy to fly and Robert had no problems.



These two models were my Nationals entry in 1999

Preparations for the Nationals were a bit complicated; I needed to finish a new model to free up my No. 2 model for Robert; we needed another FF8 transmitter and Robert needed to get his “B” certificate. In the event it was the “B” that prevented a Nats entry, in my judgement Robert was just about eligible for a “B”, but a combination of bad weather, different fields and finally a mid-air which totally destroyed his favourite model put paid to any chances of competing this year.

Meanwhile I had been assembling the latest all-moulded Sport 40 model called a “Tazer”, there was no doubt that it is incredibly fast but I didn’t seem to get it in racing trim until half way through the competition. I guess that next year everyone else will have “Tazer’s” and I will still just miss a podium finish; but that’s racing.

Analysis of the results at the end of the season showed very good consistency, all achieved using the field box that was ridiculed by the pylon columnist Alan Brown; in fact I think Alan might do better with a box like mine.

Whilst waiting to fly at the Nationals I was approached by someone “Hi, Mick, do you recognise me?”, he had the advantage as he had seen my name in a magazine. It took a moment but I did, it was Roy King who I used to fly with in Thurrock when I was a teenager; I now have an invitation to visit him at his club sometime next year.

Finally, I would like to remind you that there is an open invitation to anyone who would like to join us for a race day. It is usually the third Sunday of the month, you need to let me know 2 weeks prior to the event and then be willing to get up early on the Sunday.

Never say it can't be done!

by Ken Sollars

My desire to build a small jet engine goes back a long way. Frank Whittle had success with Rovers' co-operation and thoughts turned to gas turbines, but miniaturisation with combustion chambers and heat withstanding materials, was a long way off. Doodle Bugs came over and soon pulse jets were produced for models, but twenty-two inches seemed about the shortest length of resonant tube possible. My attempts with shorter eight inches or so produced some peculiar whining noises but would not run.

By the 1990's a clever engineer named Kurt Schreckling, was solving the miniature turbine problems. In 2001 I bought his book entitled "Gas Turbines for Model Aircraft", Issue No.29, November 1998. This started me thinking how I could build one with improvements; the compressor shown was made of wood! So the first part I made was one of dural, and aluminium welded. His turbine was made of a disc of 2.5mm. sheet 306 stainless steel with seventeen twisted blades. So I made one from Incoloy 800 bar, machined from solid with nineteen blades.

I made the combustion chamber from stainless steel thicker than Kurt used but as I did not at this stage contemplate flying it, I was not concerned about weight. About this time I learned of the Gas Turbine Builders' Association and joined. I was rapidly gleaning information and realizing the pitfalls and probable mistakes I was making. I totally changed the combustion chamber fitting



six combustor tubes from the rear end. As I was getting near the testing stage I realized the most important thing was to know the RPM because of the possibility of a runaway and the centrifugal forces involved, so the next thing was to build a very accurate rev. counter capable of reading to at least 100,000 RPM.

This seemed a bit of a joke as the first successful test achieved about 25,000 RPM. on butane gas. After weeks of modifications including increasing the number of combustor sticks to twelve, and dozens of needle size changes, with a propane/butane mix and the bottle turned upside down, feeding liquid gas, suddenly the note changed to a roar and it rapidly accelerated to 40,000 RPM, and would have gone much higher. However the compressor began to grow and would have completely broken up but for the fact of the

close tolerance stopping it. Further mods made to the combustion chamber - I seemed to be going backwards - so a new chamber to a tried and tested design had to be made and a new compressor.

Finally running on a paraffin petrol mix, I took my Incoloy turbine wheel up to 90,000 RPM on about three runs but each time it was growing and binding, and had to be machined on the tips of the blades. At this stage I was lucky enough to acquire a cast Inconel wheel which machined and balanced now runs to over 100,000 RPM, and gives about 10 lbs thrust on AVTUR jet fuel from Fair Oaks Airport.

The bearings I am using are standard ball races (16 x 8 x 5) manufacturers rating to 43,000 RPM! With attention to oil supply, air cooling, and balancing these are proving very satisfactory.

I would like to thank all those that have helped me achieve an ambition, in particular Bill Haylor of Copthorne, for Tig welding, Frank Bone for materials and Ced Tracey for jet needles, to name a few

What's next?

Still working on a built-in electric start , then possibly an ECU.

Finally, has anybody got a drawing for a suitable Delta aircraft?

Drag – Not always such a bad thing

by

Geoff Bignold

The designers of high performance sailplanes go to great lengths to produce sleek, elegant aircraft with smooth, clean lines. However, they invariably add features such as air brakes and/or flaps that enable the pilot to increase the drag of the air on the airframe in a controllable way when necessary.

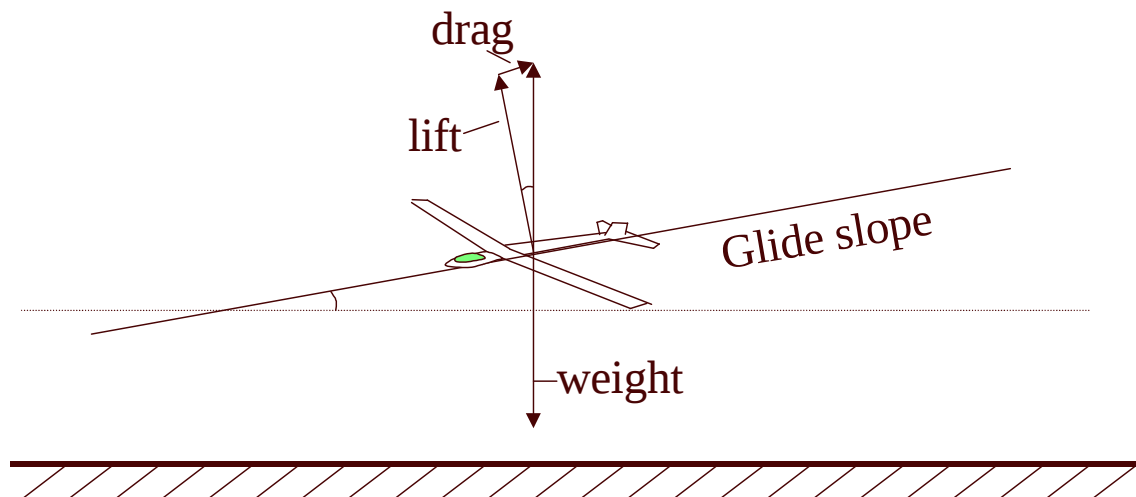
In still air, the natural glide slope of an aircraft is simply given by the ratio of the lift force to the drag force.

For good modern sailplanes a glide slope of at least 50:1 is achieved. With this sort of performance it is possible for a glider pilot to stay aloft for several hours on a good day (i.e. when there are sufficient thermals to help him restore height from time to time). However, when he wishes to land, the very shallow natural glide slope becomes something of a disadvantage. For example, if during the approach to the landing field he experiences enough lift to bring him 10 meters above the optimum glide path, his natural touch down point will have moved 500 meters further down the field. On the other hand, a local patch of sinking air encountered during the approach will cause him to land short. Either option could be a recipe for disaster as hedges, fences, sheep, cows and other obstacles get in the way. To avert the risk he needs to be able to steepen the approach in a controlled (i.e. fully adjustable) way. This is achieved by adding drag.

Air-brakes add drag and also spoil some of the lift. Their use requires the approach to be flown slightly faster (to compensate for the loss of lift).

Flaps, on the other hand, add both drag and some lift, allowing a steeper natural approach at a lower speed.

When we turn our attention to powered aircraft, the “drag” force vector becomes “drag minus thrust” (ignoring one or two complicating factors). At low power the drag exceeds the thrust and so the aircraft naturally tends to follow a descending glide slope. A high drag airframe will descend over a wider range of throttle settings. This allows more latitude in the control of height during the approach as long as the engine keeps going. At some intermediate throttle setting the drag and thrust are equal and opposite and the aircraft naturally flies level. Higher throttle settings cause the aircraft to climb as thrust then exceeds drag.



There are a number of contributors to high airframe drag, including:

Unflaired junctions, bluff profile, gaps and holes,

Struts, undercarriages and other appendages hanging out into the wind,

Short stubby wings,

Wing tips (hence the steeper glide slopes of biplanes),

Perversely, a slow turning propeller can add drag (for modellers this effect is far more obvious when using 4-stroke engines since the 2-strokes tend to speed up to match the airspeed.)

It follows from all this that an aircraft that is inherently draggy would derive little or no benefit from the addition of devices such as airbrakes or flaps. Conversely, the pilot of an elegant high performance glider (or for that matter of a high speed jet aircraft) would have a very much more difficult task if he were to be denied the assistance of features that help him to control his landing approach safely and accurately.

Scale Matters

by

Richard Hawke

There was a time when I would fly every weekend of the year come snow, rain, wind or shine - but even the risk of getting mud on the wheels is enough to keep me at home these days. So winter has become firmly established as building time for me, and we've had some excellent building weather in the past few months!

My Isaacs Fury was finished in October but still hasn't flown. At 1/5 scale it spans just 50.5" (goes in the car in one piece) and weighs about 5lbs. A Thunder Tiger .52 4-stroke should provide ample power.

Currently I am finishing off an own-design flying-boat/amphibious type biplane (a bit like the Italian jobs of the 1920's) which will pass as a scale model to all but the most anoraky observer. At 87" span it's a biggy - but then it has to be - because the whole front end of the fuselage/hull comes off to be replaced by a video camera. This will be able to point in any direction hopefully providing some interesting shots (even air-to-air!) which could be spliced together into a short film (could be the subject of a club night perhaps).

Some of you may have seen the announcement of a competition to be held in August for pre-1913 types to celebrate the 2003 centenary of the Wright brothers historic first flight. In the south, the heat (there is talk of a national final) will form part of the Southern Area BMFA Scale Competition to be held at Winchester on August 3rd. If only I still had the Demoiselle! Dave O'Brien is threatening to build a Handley Page Type 5 (a bit like the



German Taube) and is busy researching it while I'm thinking seriously about another Bristol Boxkite (it has been 22 years since I built the last one!). Anyone else out there fancy having a go? There are several kits and plans available for suitable prototypes.

Dave, incidentally, has made a smashing job of a 1/4 scale Tiger Moth (from the Flair kit) which also awaits good weather for its inaugural flight. I hear through the grapevine that Mike McKinder has recently finished a Hawker Hurricane and that a Gloster Gladiator could be in the pipeline - good news indeed. Keep up the scale interest Mike!

That's about all the scale news for now, let's hope that 2003 is a good one for scale within the club!



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The views expressed in this newsletter are those of the contributors and not the official opinion of the L.M.F.C. unless otherwise stated.