

CONTENTS

FFn	2	December Dazzler Church Fenton, Dec 28	8
MAXCAT Catapult Glider by TIM BATIUK	2	Peter Harris Memorial Trophy	9
Sting 30 Discus Launch Glider	2	2005 World Championships Argentina	9
Free Flight Proposals for CIAM Plenary Meeting	4	International Competition News	9
News from BMFA FF Tech committee	5	Biggles Leagues 2005	9
Coupe Europa, Middle Wallop, Dec 5	7	Midland Area	9
Pannett, Kay & Topcliffe Trophies Meeting Church Fenton, Dec 19	7	UK Competition News	9

DIARY

February 6 Middle Wallop	Crookham Gala. Combined power, mini vintage (BMFA rules), combined glider, precision event. Entry fee to field. Contact: J Thompson, tel. 01252 842471, email: Johnd.Thompson@btinternet.com	March 6 Hranice, Czech Republic	Winter Cup II - F1E. World Cup event. Contact: Vojtech Zima, Smetanovo nabr. 1840, 75301 Hranice, Czech Republic tel: +420 581 60 4445 or +420 604 589 792, email: vzima@sigmahra.cz
February 7 Chobham	Chobham Tree Chop. See FFn 0410.	March 6 Area Venues	BMFA 1st Area. O/P&SLOP combined (White), F1A (K&MAA/Plugge), F1G, Vintage (Plugge)
February 13 Sculthorpe	BMFA East Anglian Winter Gala. O/P (Frog Senior), O/R, O/G, O/E SLOP, Vintage, Mini Vintage, P30, Classic glider, Overall champion. See FFn 0412. Contact and CD M Marshall 01223 246142 Also Vintage Wakefield 4oz and 8oz SAM35 rules.	March 12 Crivelle, TO, Italy	6th Trofeo Ago- F1K. Entry fee €20. Contact: Sangbo Schirru, Via C R di Cavour 5, 10095 Grugliasco To, Italy, tel: +39 011 7801788, fax: +39 11 415 57 44
February 14 Chobham	Chobham Tree Chop. See FFn 0410.	March 12-13 Gjovik, Norway	Holiday on Ice F1A, F1B, F1C. World Cup event. Entry fee NOK 250. Contact: Tor Bortne and Vegar Nereng, Jernbanev. 28, 2840 Reinsvoll, Norway tel: +47 611 97 463 or +47 611 96 736, fax: +47 611 98 351, email: margit.bortne@c2i.net
February 18-21 Lost Hills, California (USA)	Maxmen International, F1A, F1B, F1C. World Cup event. Entry fee US\$ 25. Contact: George Batiuk, San Luis Obispo, 1759 Southwood, CA 93401, USA, tel: +1 805 546 8231, email: slobg@charter.net	March 25 (Good Friday) Church Fenton	BMFA Northern Gala. O/G (CMA), O/R (Caton), O/P (Hamley), SLOP, F1G, F1H, F1J/BMFA ½A, Mini-vintage, CO2, E30, HLG, Catapult Glider. Contact and CD: Dennis Davitt 0113 2675433
February 26 Viabon, France	2nd Criterium Phillipe Lepage - F1B. World Cup event. Entry fee €30. Contact: P Templier, 3, rue des Brisaciers, 77090 Collegien, France tel: +33 1 60 35 93 58, email: secret@paris-air-modele.com, web: http://www.paris-air-modele.com	March 26 Middle Wallop	Easter event. Details to follow. Contact: D Baker.
March 5 Hranice, Czech Republic	Winter Cup I - F1E. World Cup event. Entry fee seniors: €25.- / juniors: €15. Contact: Vojtech Zima, Smetanovo nabr. 1840, 75301 Hranice, Czech Republic tel: +420 581 60 4445 or +420 604 589 792, email: vzima@sigmahra.cz	March 27 Middle Wallop	SAM 1066 rally run by Bournemouth MAS for 75th anniversary. See page 19. All flyers must be insured. No radio control or control line. Contact: J Taylor, 01202 511502.
		March 28 Middle Wallop	Easter event. Details to follow. Contact: D Baker.

FFn

Thank you to everyone for renewing subscription to FFn for 2005. The first batch of NFFS Symposium reports 2004 has been sold, more are on order and are expected to arrive at the end of January, when they will be sent out to all existing orders. If you were thinking of placing an order but have not yet done so, you are welcome to place new orders for delivery then.

For some international payments to FFn it helps to have the International bank identification. After publishing this earlier in 2004 I forgot to repeat it with the subscription renewal form. For reference, it is:

International bank account number:

GB 68 GI RB 72 000 25 365 4009

Bank identifier code: GI RB GB 22

Account name: Free Flight News

Bank address: Alliance & Leicester Commercial Bank,
International Services
Bridle Road
Bootle
Merseyside GIR 0AA

MAXCAT CATAPULT GLIDER BY TIM BATIUK

The first of two items from NFFS Digest with thanks.

Lee Hines, Glider editor of Digest, wrote:

The model's name derived from Max, the family cat, who was named for Tim's late mother, Maxine—you get the drift. Tim figured a little help from beloved namesakes couldn't hurt, especially when attached to an object that is required to make maxes in competition flights!

Tim told me to begin by saying there is "nothing new," and every glider designer borrows ideas from others. In fact, Tim "borrowed" Stan Buddenbohm's Apex wing outline. Tim likes the 6-panel layout, which he believes it enhances thermal stability. He made some minor changes, including adding more dihedral (still our running inside joke), to achieve the given shape. Pivoting tail boom provides positive DT and exit from even the strongest thermals.

STING 30 DISCUS LAUNCH GLIDER

By Len Surtees, from NFFS Digest

My concepts and objectives in this project were to develop a practical, robust, gadget-free, simple discus-launch glider.

RC discus-launch gliders have been around for 10 years and continue to grow in popularity. To any onlooker the launch is spectacular (made easier by smart electronics). But what convinced me to add a discus glider to my range of glider kits is that those who have dropped out of flying may be enticed to return to the fold by the low stress (low pain) launch of this type of glider.

This must be a way forward, to allow those who can no longer stand the stress of the conventional javelin-launch glider (no more excuses like, "I really wish I could compete, but my arm can't throw any more."). The concept should also attract those who see the challenge in trying a new approach.

Size. I chose a 30-in. wingspan, as opposed to the more conventional 60-in. RC span layout, for two reasons:

(1) The incredible stress on a 60-in. span glider, launched at high speed, demands a highly sophisticated structure. This type of construction is beyond the capabilities or interests of many

builders, and I wanted to employ simple, conventional building methods.

(2) If a flier can launch a 30-in. wingspan glider to a reasonable height, into a thermal, that scenario would make this glider competitive. (Also, a FF glider is not burdened by having to carry the additional weight of servos, batteries, etc)

Experiments. At the point of release the outboard wing wants to follow the arc of the arm. This action tends to roll the glider into terra firma, before you can say "Ouch." I tried two gadgets to combat this unwanted tendency (a wedge glued to top of right wing tip, and a drag vane on the inner right wing). Both failed miserably, much to my chagrin, as I thought they were innovative approaches.

Eventually, by building in the required trim (a process that involved crash and bash, evaluate and crash some more) a workable design emerged. The KISS principal (keep it simple, stupid) still holds true.

Things Learned. Several critical design elements emerged during development:

- Location of the finger-grip dowel is important.
- The wing-tip profile must be shaped so it doesn't impede release.
- The stab needs a high angle of tilt for glide turn.
- The model needs an extra-large fin, above and below the stab (just like the RC designs—no getting away from that).
- A relatively short rear fuselage boom reduces bending moments.

Coupled with my new viscous "Smoothie DY" activator and a hinged rear carbon-fibre. Lenytube (enabling a small screw to easily adjust the incidence between wing and stab) a practical design emerged.

Launching. After having tried the discus launching concept, I can safely say, "It's different, completely different." For one, I found that it's not easy. It needs a lot of concentration and practice to effect a good launch. The immediate sensation is how little effort it takes to generate a high launch—with no pain!

The launch for discus is as critical as it is for the conventional javelin-style launch. A big difference is the angle of lag needed to project the glider on its correct path.

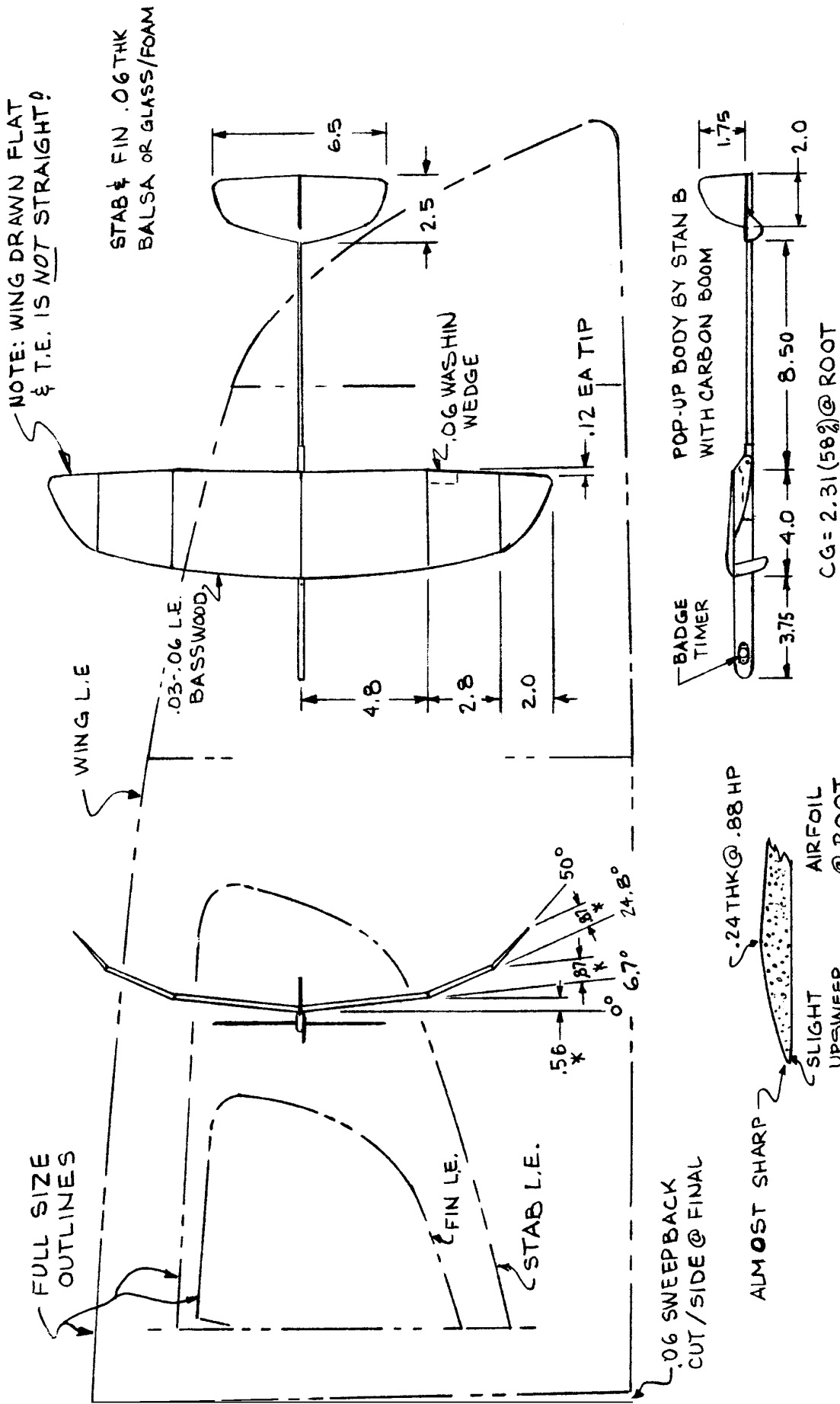
By "angle of lag," I mean you must rotate fast enough so that the glider is lagging behind the hand. This allows you to fling the glider at an angle pointing away from the natural arc of the arm.

This was the biggest learning lesson. But once understood, it made trimming a lot easier. Lagging is also aided by proper positioning of the wing tip finger-grip dowel.

The future. I don't think, for one moment, that the discus glider is going to sweep all before it or dominate hand-launch glider competition. But I do see the concept as a legitimate alternative to hand-launched glider that will interest some, but not others.

I am confident that the discus revolution will not relegate the humble javelin-style launch glider. Discus will, rather, open the door for a greater participation in this wonderful sport.

A kit for Sting 30 is available from Len Surtees, 10 Woodbry Cres., Tamworth NSW 2340, Australia or <http://www.stingaeroproducts.aunz.com>



MAXCAT 19 CLG BY: TIM BATIUK
 SCALE: 1:5 & FULL SIZE 22 MAY 04 L. HINES
 WINS INCLUDE 2004 SWR & NORCAL '03 & '04

* NOTE: FOR LIGHT AIR GLIDER, REDUCE DIHEDRAL DIMS BY .06.

WT GOAL: 27-31 GMS

FREE FLIGHT PROPOSALS FOR CIAM PLENARY MEETING

The following is a summary of the free flight related proposals which are going to appear on the agenda of the CIAM Plenary meeting in March 2005. Note that these are PROPOSALS and will be voted on at the Plenary meeting by the national delegates to CIAM. Brief your delegate and free flight representative if you have strong views on anything (to FFTC in UK).

General FFSC proposals

There are a number of administrative type proposals from the CIAM Free Flight Subcommittee (FFSC). Four of these are to modify aspects of rule B.13.1 covering interruptions. These extend the list of reasons for interruption to include emergency service access and any exceptional circumstances decided by the jury. The wind speed for interruption of free flight is proposed to be reduced from 9 m/s to 8 m/s. The actions after an interruption is broadened by rewording to:

“In the event of an interruption during a round, **the Jury must decide the action to be taken to complete, repeat, or cancel the round.** The remainder of the round may be completed as soon as conditions allow, with adequate notice given to all competitors and Team Managers.”

It is proposed to change B.15.10 to force numbers to be on the upper surface of the wing (deleting the word “preferably” in the current rule and not stipulating “left” wing).

There is a proposals to add forward folding propellers to the items prohibited on safety grounds in para B.17.3.

Finally, it is proposed to change record section rule 7.1.4 item 2 to limit “Specific Model Aircraft” records in free flight to one person, not allowing a team. On the subject of records, The CIAM Bureau will have a number of proposals and these will include removing the record in competition categories for F1A, F1B, F1C and the “total of 6 flights” from indoor competition records.

Supermax

UK, France, and FFSC have all submitted proposals to eliminate the supermax. These would revert to direct scoring of all flights scored. France adds in their proposal to limit any increase of maximum decided according to conditions (second para of 3.1.7) to a maximum increase of one minute.

F1E scoring

FFSC make three proposals on details of F1E scoring. One is to clarify that junior percentage scores are based on the scores by juniors, to specify accuracy of calculating scores, and to base percentages on the declared maximum for the round. The latter change would replace the current system of basing the percentage on the highest flight time achieved in the round, which may be a max or less than a max. There is a lot in favour of the current method since it rewards the best flight in the round with 100% even if an over-optimistic max was set by the organisers, but the organisers prefer to know what to base percentage scores on before the end of the round...

Fuel

Germany propose changing 3.3.2 fuel specification for F1C to 80% methanol, 20% castor **or synthetic** oil.

World Cup rules

FFSC propose to tighten up the definition of allowing a country to run a World Cup event at a site in another country. This will require the country running in to be involved in

organising the event and not just be a “country of convenience” to allow a country to run an extra event in their country.

Electric models

Specifications for electric free flight models are proposed by France, USA, and the FFSC. In the latter case the proposal includes some options reflecting the difficulty of reaching agreement. It will be difficult to work though it all at the March meeting. The key points of each proposal are summarised below.

FFSC

Characteristics

- | | | |
|----------------|-------------------------|-----------------------|
| Option A1 : | Max projected wing span | 2.2 m |
| or Option A2 : | Surface area (St) | 32-34 dm ² |
| Min weight | | 500 gram |

Maxi weight of battery pack

(including connectors on the battery):

125g for NiCd or NiMH

90g for LiPo

Option B1 : Maximum number of cells

(must be visible in battery pack for counting):

7 cells for NiCd or NiMH

2 cells for LiPo

or (Option B2 : no limit on number of cells)

Maximum duration of motor run: between 10 and 20 seconds from release of the model

Option C1 : time of run to be specified by the organiser before each round

or Option C2 : time of run to be announced in advance for competition

or Option C2 : time of run to be announced in advance by CIAM for each year

Option D1: Motor runs may be timed statically on the ground by timing the motor cutoff. The motor run will be timed by the timers. In case of an overrun, the flier or the timers can request that the motor be statically timed after the flight

or Option D2: Regular timing of motor run during flight

Number of Flights: 5

Duration of Flights: 3 minutes

Classification - flyoff

In order to decide the individual placings when there is a tie, additional flights shall be made after the last flight of the event has been completed. The motor run allowed for the first of the deciding flights shall be 5 seconds shorter than that used in the rounds. The motor run will be reduced further by 5 seconds for each subsequent flight, subject to a minimum run of 5 seconds. The maximum time for the deciding flights will remain at three minutes.

France

Characteristics

Minimum projected wing surface area 32 dm²

Maximum projected wing surface area 34 dm²

Minimum total weight (including batteries) 500g

Maximum nominal battery voltage: 7.4V. The battery pack must be composed with 2SxP LiPo cells or 6 NiCd/Nimh cells

Each model must be equipped with a standard automobile "Faston plate plug", placed externally.

Fuse 15A for ferrite motor
10A for brushless motor

The fuses will be provided by the competition organiser.

The fuse will be checked before each flight.

Maximum duration of motor run: 20s

Only one change may be made to the wing or tail incidence during the flight before dethermalising

The motor must drive the propeller directly, no gears allowed

Number of Flights: 7

Duration of Flights: 3 minutes

Classification - flyoff

In order to decide the individual placings when there is a tie, additional deciding flights shall be made immediately after the last flight of the event has been completed. The maximum time of flight in each additional round shall be increased by one minute on the maximum time of flight in the previous round.

USA

Two proposals are put forward, with working class names F1Q and F1R. The details are summarised as:

F1Q/R Common features.

The model is powered by an electric motor.

A single battery will power the motor as well as a controller if one is used.

Maximum charged battery voltage: 12 volts, accessible externally

Maximum loading 16 g/dm²

Backward folding or feathered propeller(s) required.

Motor is timed from the instant of launch to the folding or feathering of the propeller(s), or to the transition out of power. The organisers can opt to test a motor run statically after the flight to check overruns.

F1Q specific features:

Maximum battery weight 125g

Motor run up to 20 sec

7 flights, max 3 minutes

F1R specific features:

Maximum battery weight 62.5g

Motor run: up to 15 sec

5 flights, max 2 minutes

Flyoffs

Organisers can keep the motor run and increase the max, or retain the max and reduce the engine run by 5 sec increments down to 5 seconds.

Implicit

No limitations on motor(s) types, gearing, auto surfaces or timers

No restrictions on battery type.

No curtailing battery output by fuses or resistors.

NEWS FROM BMFA FF TECH COMMITTEE

From Ralph Sparrow. The first 3 items follow-on from the column last month.

World Champs – Argentina

World Champs - Argentine. The reserves for each class were omitted. These are

F1A- P Ball, F1B- B Spooner, F1C- K Faux.

Free Flight competition results service

Ian Davitt has now taken over the Free Flight competition results service. Contest results, Plugge and Senior Championship positions can be obtained in the following ways:

By e-mail distribution. Those who received the 6th Area results for 2004 from Ian will continue to do so. Anyone wishing to receive the results in this way should contact Ian via e-mail at iandavitt@ntlworld.com. The results are collated and distributed on Microsoft Excel, so please check your computer is able to read this software.

By post. Please provide Ian with ten A4 size stamped addressed envelopes at 2 Kay Walk, St Albans, Herts, AL40XX. There are 24 Free Flight competitions in the year, so results will be posted periodically.

By accessing the Free Flight Technical Committee web site. Results will be posted as available.

Could Contest Directors please forward results to Ian in a legible format at the above address. Rewriting of scores into place order is not necessary, but please check scores are correctly totalled, as they will not automatically be checked.

For Area events, the courtesy of nil returns will speed up publication of results. The results forwarded should include the BMFA numbers and addresses of the top three in each class to allow the awarding of Certificates for Area events, and trophies at the end of the year.

Team Glider Award

We await Council deliberations. The FFTC will be proposing some changes to the rules to ensure that this problem does not arise again.

FFTC meeting December 3rd

This meeting started at 4pm and finished at 10pm. The more important items discussed were -

Set Agenda This confirmed the make-up of the committee and officers for 2005 as

Chairman -	Mike Woodhouse
Co-options -	Steve Philpott and Trevor Grey
Specialist body rep. F1E advisor (non-voting)	Steve Philpott
Secretary -	Chris Strachan
Treasurer -	John Carter (also holder of Team Travel Fund)
Council Delegate -	Dave Clarkson
PRO -	Ralph Sparrow
Safety Officer –	Trevor Grey
Results officer -	Ian Davitt

Entry fees for 2005. Centralised meetings – first entry £5, subsequent entries £3.

Area Centralised and F1E meetings – First entry £3 plus area charge for site.

Team selection meetings - £12 per entry.

All meetings – Juniors – free.

Calendar. Regular updates will be sent to the magazines, BMFA news and to Bryan Spooner's calendar accessed via the FFTC page on the internet.

Motorised retrieval. John Carter produced a draft and this will go forward to the next FFTC meeting and then publicised either for a rule change or to be included in the CD guidelines document.

CD Guidelines. Mike Woodhouse is to produce the final version for publication and will be made available for CDs.

Senior Championship Points. Proposals for a change to the method currently used will be published some time in May for 2006 rule change. Trevor Grey is carrying out this work.

Phil Ball had responded with helpful suggestions. He admits that he is part of the problem!

Type Awards for combined vintage classes. It has been suggested that certificates should be awarded to best glider, best power, etc., in these competitions at the Nats. These would not get championship points. Does anybody have a view on this?

Lost Certificates 2004 Area Centralised events. In Davitt is currently trying to sort this problem.

2005 Junior Team. The numbers of juniors available for the Junior champs in Romania appears to have shrunk to two because Richard Jack is now considered to be a senior according to FAI rules. There was a proposal to fast track some juniors to make up the numbers but the BMFA Technical Council seems to have made this difficult. They require that juniors qualify through the senior trials system. Mike Woodhouse is progressing this. It had not been possible to get a date for this event so there have been no adverts as yet for Team Manager (*Ed: dates were announced at CIAM meeting on the same day as FFTC meeting*)

Officer's reports.

Treasurer. The team travel fund is under pressure and efforts are need to raise a bit more cash. The Free flight forum and publication sales have, this year contributed £1500. If anyone has ideas to raise more cash please make your suggestions to the FFTC.

Council Delegate. See comments re junior team above.

PRO. It was thought inappropriate to publish the FFTC minutes in full, so this newsletter is a precis of the minutes. Please be free to make constructive comments as to the content and your input for matters on the TC agenda are welcome. Contact me at ralph@sparrow.freemove.co.uk

I raised the question whether this letter needs to go to the individuals on the distribution list as well as being put on Bryan Spooner's site via the FFTC page and published in FFn. The feedback I have had seems that people still want it that way. If you are fed up with reading the same thing two or three times you can unsubscribe by e mailing me. If you look at BMFA homepage/services/discussion forums/freeflight, there is a little used means of asking questions or getting a point across. Other disciplines use BMFA homepage/services/links directory where most other disciplines have their wares on display in glorious technicolor. Is there a web genius out there to put free flight on this modern front page? Any offers of help to me please.

We will be putting the request for your suggestions for 2006 rule changes in the BMFA news to also catch those people who do not see FFn or use the internet.

Nationals Otherwise known officially as **BMFA Free Flight Championships**. The proposed budget was circulated. PRO will send out press releases to various magazines, etc. The question was raised as to whether we should try to attract the public by advertising in local papers and local radio. There is the worry that it could attract some people we don't want. We all leave binoculars, radios, etc., about while we go about our business. Do we want to attract non-fliers? What do you think?

Planning. Mike Woodhouse reported that planning for the Nats is well underway. Roy Wright will again act as agent for the general site tasks. Roy has recommended some changes

such as improved signs, better gate control, improvements to the toilet arrangements, ID labelling of organisers and controllers, raffle tickets sold at the gate. Roy has also supplied a list of local hotels, bed and breakfast accommodation, camping sites (although we would like to encourage camping at BH), self catering cottages, hotels and restaurants. Contact Roy if you want his list. Please apply by post to Roy Wright, 14 Hillside Crescent, Grantham, Lincolnshire, NG31 7EY enclosing a long SAE.

Assistance. Help will still be needed for the model flying bit - CD's and assistants, selling Free flight forum reports, etc. Please think about this. Without volunteers not much will happen. All offers of help to Mike Woodhouse. Mike will be away at the World Champs at Nats time. He has arranged for Jo Halman to be the Nats co-ordinator.

Publicity. We need a design for the Nats self-adhesive logo. Something simple, circular, 2 or three colours is required. There must be someone out there with design skills. Send your design to the FFTC secretary by 31st January.

2005 Stonehenge Cup. Sculthorpe has been booked.

Rules for 2006. Items already being considered are maxes in mini events, Senior championship (see above), Paper gliders. In addition, the SAA team glider problem has promoted thoughts to prevent "club hopping". This is being discussed between the FFTC and the Technical Secretary.

Flying Sites and the BMFA. Draft Byelaws for model flying in public places have been published by the Office of the Deputy Prime Minister. Various points have been put forward by the FFTC to make it free flight friendly. No progress was reported on the flying site survey. Site negotiations re Epsom and Dartford need the attendance of Roger Bellingham at the next meeting. Lightning guidelines have been drafted. The R/C version requires that it is the CD's responsibility to call a halt to the contest if lightning is in the air. Some of us felt that this is unworkable in a FF context. This is ongoing. Risk assessment is part and parcel of modern-day life and the byelaws mentioned above include this.

Future of Free flight conference. I will be hoping to run the big tent idea at the R/C nats. The date has been left clear on the BMFA calendar and, I hope, by others. Probably a vain hope. We will need high class models and fliers to help. More later.

AOB

Trevor Grey will liaise with Ian Kaynes re Electric flight proposals being discussed at the CIAM.

Steve Philpott mentioned that the Parascenders at North Luffenham would like to see some free flight demos for their Scout training week. Steve will be looking for help. The rocketeers asked to put on a demo at the FF Nats. The decision has been deferred until a demo has been seen.

Dates. Next FFTC meeting date to be confirmed but will be early February.

Full Council Meeting is Jan 8. Technical Council is March 5.

Tailspin --The bit at the end where I give my 'spin' on things.

So you can see why we didn't finish until 10pm. I think that it was a far too crowded agenda.

The committee name is misleading. It is 95% administration and trouble shooting and 5% technical. I feel strongly that the work and decisions of the FFTC should be widely known among the community. But do you want this level of detail? Please let me know.

Not really TC work, but linked in to the programme, I have had a call from Bill Cox. Bill is planning the series of Sunday monthly events at his Grantham flying site close to Barkston Heath. This series will probably be for Vintage events including Coupe, Mini and Wakefield classes. Entry fees will carry forward from month to month to provide a good prize amount for a league type event. The series will start in April and go through to September. The climax will probably involve roasting a large animal to be washed down with specially selected wine from bon-viveur Bill's cellar (or it could be from Tesco). Bill is thinking of having these contests on the second Sunday of the month. I am sure there will be good support.

COUPE EUROPA, MIDDLE WALLOP, DEC 5

Report by Martin Dilly

Perfect weather conditions ensured a large entry at Middle Wallop for the 2004 Coupe Europa. The gentle breeze meant that all flights stayed on the airfield and nobody had difficulties returning in time for the next round, except for poor Gerry Ferer, a late arrival, who gallingly missed the first round only to max the other four.

There was one ten minute hold during the second round whilst a light aircraft took off; the communications link set up with the control tower worked well and no problems arose between the various airfield users.

Six made the FIG fly-off, all clocking over two minutes in what seemed like neutral air. Holidaying from his usual FIC flying, Neil Allen won with 3:21 which indicated either a patch of better air or the world's best batch of Tan 2. The presence of two ladies amongst the six at fly-off was great stuff and Sally Challis's success with husband Ted's models will perhaps encourage a few more spouses to have a go. Sally now intends to build some models herself, but would she have been so encouraged with the BoM rule in force?

Vintage Coupe d'Hiver is now very popular, thirty-one flying in this class. Certainly no particular design has stood out as a winner; trimming and flying skills are the key to success as J O'D and Ralph Sparrow demonstrated, flying off with their Jump Bis designs..

The day ended with a prizegiving in the Museum, awards extending to sixth place being presented by AMI's Ron Moulton. Thanks for the prizes go to AMI, Ian Dowsett, Flitehook and Free Flight Supplies.

F1G - Aeromodeller Trophy 46 flew

1	N Allen	300	+201
2	D Greaves	300	+180
3	R Wilkes	300	+155
4	S Challis	300	+138
5	I Dowsett	300	+125
6	E Flynn	300	+123

Vintage Coupe d'Hiver - AAAA Trophy 31 flew

1	J O'Donnell	6.00	+2.31	Jump bis
2	R Sparrow	6.00	+2.00	Jump bis
3	A Longhurst	5.57		Entenure
4	T Tyson	5.38		Bagatelle
5	R Oldridge	5.37		Bagatelle
6	S Willis	5.27		Bagatelle

Ladies' Prize: Sally Challis

Junior Prize: Brindley Taylor

Flitehook Team Trophy Bristol & West MAC

(Dave Greaves 2nd; Sally Challis 4th; Chris Chapman 10th)

PANNETT, KAY & TOPCLIFFE TROPHIES MEETING CHURCH FENTON, DEC 19

Report by Dave Hipperson

The first contest of the 2005 season managed to catch a very narrow weather window after some fierce weather had passed through the North of England during the previous week. The clear calm and icy cold came so suddenly in fact that Church Fenton's runways had no time to dry out and patches of them were veritable rinks of black ice until well into the afternoon. The only real hazard on this sunny day when the modest northerly drift, 5 mph or so, coincided nicely with one of the most comfortable directions for flying.

The breeze at altitude was somewhat stronger and quite a few contest flights, not withstanding the rather conservative max for such liftless conditions, got out of the field. The high ones, mostly power, were swept around in a slight arc as the drift became more easterly with height. Most interesting to see flights going downwind in a curve rather than the more conventional straight line - not a little unnerving at first.

Lack of drome availability had excluded this event from last year's programme so it was doubly encouraging to see these three prestigious Northern Area trophies on offer again. Organisation, in the form of Joe Northrop as CD, was to the usual high standard and the efficient and good natured management was further enhanced by free wine, cake and cheese for all at control.

Competition was tough in Power and Vintage but entries rather light in Glider. John Carter's win here was his third consecutive for this trophy. Flyoffs were larger in the other classes. Open Vintage went first at 2:30 pm under gin clear skies and with the temperature dipping back to near freezing. There had been little indication of lift during the day and now with the sun setting this was surely a good test. Frank Rushby had uncharacteristically dropped a flight in Power earlier when one of his Creeps rolled too much on the climb, but came back immediately with a very potent looking power design in Vintage. This was a Marcus Firecracker with a ball race Fox 15 for urge. He was first away and most impressive. Very high off the full 20 secs run and gliding well. The rubber models that followed looked somewhat tame by comparison but the next three down all made very good flights and once again drifted much further than might have been expected. Rushby's winning flight was retrieved from many fields out.

The Power flyoff twenty minutes later also had a stand-out front runner. Ewan Jones deployed his rarely used big multi panelled taper wing glow model with its very fast wide sweeping climb and unusual left glide. It was indeed this glide that did the winning with the model hanging on beautifully in the cold afternoon air from a very respectable climb. The diesel motor in Hipperson's number one model, he knew it was a risk, suffered from this cold and hardened up immediately it was launched. From reduced height it too needed all it's glide to hold off the flight from a steadily improving Pete Woodhouse. Quite a close run thing with Ian Wilkinson's PAW 19 powered elliptical design also flying well. We will never know how the seventh qualifier might have effected this list as he - Steve Barnes, last year's most successful Slow Open Power contestant - suffered a huge over-run and didn't fly a reserve. The model was seen down eventually.

When it isn't too windy the winter is a great time for contests on good sites like Church Fenton. Clear fields, no leaves on the trees, very little lift and limited daylight so everyone gets home at a reasonable hour even the far travelled. This UK season starts with a veritable avalanche of such events more of which anon

All Open Events 3x 2.30 max

Slow/Open Power, Tony Pannett Trophy 11 flew 7 FO

1	E Jones	7.30+6.21
2	D Hipperson	7.30+5.15
3	P Woodhouse	7.30+5.07
4	I Wilkinson	7.30+4.56
5	B Scott	7.30+3.16
6	C Hickmott	7.30+2.48

All models flown by above were Slow Open Power

Open Vintage, Topcliffe Trophy 11 flew -9 flew off

1	F Rushby	7.30+6.50	Firecracker
2	D Davitt	7.30+5.54	Lanzo
3	J O'Donnell	7.30+5.24	New Look
4	R Pollard	7.30+5.19	
5	J Godden	7.30+4.40	
6	S Fielding	7.30+3.37	

Northern Area Mini Vintage 7 flew

1	G Warburton	6.00+3.26	Open Glider, Kay Shield
2	G Peck	6.00+2.48	1 J.Carter 7.30 + 3.23
3	M Sanderson	6.00+2.15	2 A.Jack 7.30 + 3.01
4	G Cutting	6.00+1.47	3 R.Jack 7.30+ 1.10
5	J Foster	6.00+1.27	4 G.Peck 6.51
6	T Ellison	1.50	5 A.Kelly 5.50

DECEMBER DAZZLER Church Fenton, Dec 28

Report by Dave Hipperson

A very complex mixture of combinations attracted plenty to attend Church Fenton again a few days after Christmas despite the forecast of a cold bright breezy day. Clear and sunny most of the time the wind varied quite a lot rarely being less than 10 mph although there were some mysterious calm spots in the afternoon when mostly it was at it windiest. Maximum drift was a little above 20mph and always steady from the West.

Euphemistically dubbed "Popular High Performance" event No 1 had an obvious choice of class and that was Vintage Rubber - nobody flew it. The only one in the top scores was a Hep Cat when the field was wide open for a Lanzo! It is quite simply that power is so popular particularly in the North that most opted for that but definitely the difficult way on such a windy day. Furthest travelled of all Trevor Grey went one further and used clearly the least popular of all choices in this class that of Electric Open. After a double pile in robbed him of a flight in the Mini Medium Mixture event No2 he switched to his bigger models in the final hour of the day when we had some of the calmest moments and maxed twice. Dave Limbert was down to a PAW 19 reserve Slow Open Model after much damage to his others the week before and had a rather short run on his first flight dropping time but Alan Brown's AM35 powered Dream Weaver had rolled the maxes off comfortably the last one also being late in the day during a very pleasant quarter of an hour long 5mph calm spell.

No flyoffs necessary in any of the other classes. As well as Grey's problems in the 2nd event a spate of timer malfunctions kept everyone else from achieving what in practice should have been a very easy six minute total. Both the Dixielanders of Wykes and Hipperson had flights off 4 second runs and Ewan Jones's Glow Worm had a similar ditch. This left Colin Fosters effort with a 1/2A model - not the easiest choice - on top when the contest ended at 2:15pm.

Rather a thin entry for the final Northern Mini Vintage League event and even fewer flying in the "Experimental" Mini Class where a total time of 5:30 could be approached in any way the contestant wished - one long flight or up to three short ones. This novel arrangement usually pulls good entries but not on this day. Hipperson's Brit. Power produced the goods on its first flight then didn't do quite enough on the second to reach the total in two but he had no real opposition.

The flyoff between Brown and Grey was run off shortly after the first wintry shower of sleet had cleared through. Alan Brown's Dream Weaver had a slightly short run - the complete 12 sees would have saved the poor pull out which lost it crucial height. The glide was fine but more time was lost when the model hit and stuck in the largest of all the trees about a mile downwind. Grey's EOP flight taken a few moments later climbed well - possibly almost as high as the power model and for nearly 20 seconds longer of course. The glide too was marginally better and it cleared the trees and landed safely behind.

How CD John Godden could have stayed warm standing around all day is a mystery as this was a tough one for all but the very active. However he was still alive enough at the end to preside over the prize giving and raffle. After rescuing Richard Wykes' Dixy from a small tree on the edge of the drome the 'party' adjourned to the magnificent specimen that Alan Brown had found for his Dream Weaver. Some 70-80 foot up a beech in a small copse standing close by a picturesque farm house. Thankfully the residents of same were not in as they might have been more than a little concerned to see what descended on their area that evening. A group of no less than ten determined persons! Although the model was clear to see prospects did not look good. Conventional roach poles could get no where near even off the top of the Hipperson ladder. It was Pete Woodhouse's aluminium pole array that swung the balance. This kit of works must have extended over 50 feet when fully assembled and from the very top of the ladder it was possible to contact the model and push it free. Miraculously it kicked into Dt'd mode as it came out and floated down over the farm house and into the garden where it settled in yet another tree and actually took quite a few minutes to find again! Eventually the model was recovered with nothing but tissue damage and everyone involved de-camped to the Fenton Flyer Pub where the rest of the competition had already a head start. More drinking, as if Christmas hadn't seen enough, but this time in so much better company! Altogether a thoroughly entertaining day run and competed for, in good spirit.

Event No.1: Combined SLOP, F1J, Vint Power & Rubber, O/G, EOP. 2 flights to 2.30 max, 10 flew

1	T Grey	5.00+3.39	EOP
2	A Brown	5.00+2.53	Slow Open Power
3	D Limbert	4.53	Slow Open Power
4	D Davitt	4.40	Vint Rubber
5	E Jones	4.19	Slow Open Power
6	T Aydon	4.14	Vintage Power

This event does not count towards league scores as it was not flown as advertised- i.e. not to three flights.

Event No.2: Combined Classic Power & Rubber, 1/2A, Tailless, Vint.Glider, E30. 3 flights 2.00 max, 11 flew

1	C Foster	5.24	1/2A power
2	D Hipperson	4.49	Classic Power
3	R Wykes	4.32	Classic Power
4	B Whitehead	4.22	E30
5	E Jones	4.08	Classic Power
6	T Grey	4.02	E30

Event No.3: Combined Brit Power, Cabin Power, P30, CdH, A1, Classic Glider, CO2

Three flights, no max to a 5.30 total or more

1	D Hipperson	5.27	Brit Power
2	J Foster	0.55	
3	P Robinson	0.55	

Event No.4: Mini Vintage, 3 flights to 2.00 max

1	J Foster	6.00
2	G Warburton	5.56
3	B Cleasby	4.55
4	J O'Donnell	1.57

PETER HARRIS MEMORIAL TROPHY

The Falcons club have decided to withdraw the Falcons Trophy which is awarded for Slow Open Power at the Nationals and replace it by the Peter Harris Memorial Trophy. This fitting tribute to Peter is planned to be in the form of a figurine in the pose of Peter launching a power model. Donations for the trophy are being handled by John Cuthbert. Please send donations by the end of February to John at 7 Cliff Drive, Burton upon Stather, Scunthorpe DN15 9HW

2005 WORLD CHAMPIONSHIPS ARGENTINA

Bulletin of the Argentina World Championships has been issued and can be found at www.argentina2005.com

Preliminary entries have been received from: Argentina, Australia, Austria, Bosnia-Herzegovina, Canada, Czech Republic, Estonia, Finland, France, Germany, Italy, Latvia, Lithuania, Netherlands, New Zealand, Norway, China, Poland, Russia, Slovenia, Sweden, Switzerland, UK, USA, Ukraine.

Nothing has been heard from the following and the organisers would welcome news of any participation by: Hungary, Israel, Japan, Spain, Bulgaria, Romania, Denmark.

The bulleting includes the following safety announcement:

"The safety rules of Sporting Code section B.17 must be followed. In particular this includes the specific item:

B.17.4.b) Required - All spinners and other forward-facing metal or equally rigid projections should have a minimum radius of 5mm.

The FAI Jury will interpret this rules to include to include FIC forward folding propellers. Thus forward folding propellers and spinners with a nose radius less than 5mm will be forbidden."

INTERNATIONAL COMPETITION NEWS

There are some amendments to the World Cup event details published in FFn last month.

BEAR CUP. This was not included in the original list of 2005 World Cup events but has now been added to the list. It appears that the notification may have been mislaid instead of being included in the draft calendar and so exceptionally it has been accepted as a late addition. The Bear Cup is understood to be early March but the exact date is not available at this time.

SUMMER CUP World Cup event at Stalowa Wola, Poland, for F1A, F1B, F1C has been postponed one week from the dates shown in FFn last month. The new dates are August 12-14, all other details remain the same.

KRKA CUP, World Cup event in Slovenia in October, has a correction to the web site address. This is now

<http://freeweb.sirol.net/zulicbor/krkacup.htm>

All other details remain the same.

FAVLI CUP in Italy has been moved back one week to October 22 and 23., other details remain as published.

BIGGLES LEAGUES 2005

From Brian Lavis.

The qualifying competitions for this year are the same as for 2004 with the addition of the Tynemouth Mini Rally. So:

Northern, Easter, Spring, Nationals, Oxford (F1H only), Brumfly, Scottish, Summer, Southern, Tynemouth.

The competitions must continue to satisfy: BOM, 50m towline for F1H and single class except the necessary combined F1J & 1/2A for power. Scoring will stay the same as previous years.

MIDLAND AREA

"I reported to the Midland Area committee at the recent AGM that the Free flight section had had a successful 2004 season with 226 entries over the 6 area events. After taking into account the airfield charges, this has resulted in a small surplus of funds to carry over into 2005 (as did the 2003 season also). This could be used to cover any poor attendance in the event of inclement weather etc. I also recommended that I reduce the airfield charge for 2005, which was accepted as a good idea. The Midland Area committee also very kindly agreed to fund the purchase of a mobile phone to be kept with the CD box for emergency use, liaising with the parascenders, radio flyers, Army and Gamekeeper at contests if required. If anyone planning to fly with the Midland area for 2005 season would like their mobile number added to the phone memory could they please either text it to 07854 426061 or contact Simon on 01926 886871. No confirmation on a venue for 2005 as yet, but as soon as I know I will let everyone know."

Simon Dixon, Midland Area Free flight comp sec

UK COMPETITION NEWS

CROOKHAM GALA will be at Middle Wallop on Sunday February 6. Events will be:

Mini Vintage to BMFA rules;

Combined Power (motor runs: Models with bunt 5 sec, Models with functions except bunt 7 sec, Non Vintage models glow 9 sec, Non Vintage models Diesel 11 sec, Vintage models 15 sec, Open electric models 30 sec);

Combined Glider (modern to BMFA rules, Classic/Vintage Gliders to SAM rules; Vintage gliders (before 31 Dec 1950) – 100m towline, Classic Gliders (before 31 Dec 1960) – 75m, modern gliders – 50m);

Precision IC & Electric Power & Rubber, Vintage & Modern, Any model, Any design. First flight (to determine target time): minimum 25 seconds, no maximum. 2 further flights: total error of both flights (in seconds) from the target time to determine the winner. Note: Models can be fitted with a DT system, but flights where it is used will not be eligible.

All classes (except precision): 3 flights, maximum to be decided on the day. All classes fly off models MUST be the same classification as that used in the contest.

All contestants to hold BMFA insurance. Contest start 10.00. An entry charge will be payable at the airfield gate (at this time the amount is unknown). Contact: John Thompson tel. 01252 842471 or email: Johnd.Thompson@btinternet.com

MIDDLE WALLOP dates for other events in 2005 are: Easter event March 26-28, SAM Euro Championships August 27-29, and December 4.

BMFA EAST ANGLIAN WINTER GALA on February 13th will additional events Vintage Wakefield 4oz and 8oz . Notified by ill Cox, 01775 767599, these will be run to SAM35 rules.

SAM 1066 RALLY at Middle Wallop on March 27 will be run by Bournemouth MAS in celebration of their 75th anniversary. Events will be Club Classic Rubber, P30, mini-vintage rubber, A frame (mass launch), spark ignition (precision), vintage/classic open glider (100m line vintage, 50m classic), combined vintage/classic HLG and CLG. All flyers must be insured. No radio control or control line. Contact John Taylor, 01202 511502.

WOODBURY COMMON GALA will be on Saturday and Sunday July 9th and 10th. At Woodbury Common, full details in next issue but programme is likely to be very similar to last year. Contact Ron Marking 01209 213254.

FFn INDEX 2004

Not listed here are Noticeboard, News from BMFA FF Technical Committee, UK and International Competition News.
Location shown as page/month

MODEL DRAWINGS

F1C	Update 250	T Oxager	23/3	Open Power	P Watson	134/12
F1E		John Pope	120/11	Open Power	T Payne	134/12
F1G		D Thorens	17/2	Tailless Glider Badenia	S Kaltenmaier	37/4

ARTICLES AND NOTES

Biggles League	2/1, 38/4, 64/6, 76/7, 92/8, 113/10
BMFA FF conference	32/4, 40/5
BMFA Senior championship Championships	44/5, 61/6, 122/11
British teams for Romania	68/7
Champs results, FAI web site	29/3
Euro Champs, Buzau, Romania ,	80/8
F1E Euro Champs, Czech Rep	106/10
Junior World Champs, France,	94/9
UK supporters at Euro Champs	27/3
UK supporters at World Champs	116/10
World Champs Indoor Romania	118/11
Chobham Tree Chop	116/10
CIAM Plenary meeting	32/4
CIAM Bureau Meeting	128/12
Correspondence	
Crisp, "Derby", "Annersley"	4/1
Salzer	19/2
Davitt, Hipperson, Lumsden	26/3
Edge	38/4
Ball, Marking, Howick	47/5
A Jack	75/7
Coupe Championship	3/1
Coupe d'Hiver League	18/2
Electric:	
FAI	66/7
Rule change proposals E30 & EOP	76/7
FAI 2005 Competition calendar	129/12
FFn	2/1, 22/3, 119/11, 128/12
FFn Index 2003	8/1
Free Flight Forum	78/7, 116/10, 124/11, 136/12
French Teams for 2005	123/11
Indoor at the Dome	49/5
Indoor events	29/3
Indoor Record by R Bailey	2/1
Indoor Record	19/2, 42/5, 97/9
League results for 2003	10/2, 28/3
League rules 2004	28/3
League positions	77/7, 91/8, 114/10
League rules 2005	137/12
Martin Gregorie	102/9
Middle Wallop	38/4
Midland Area venue	38/4
NFFS Sympo Report 03 from FFn	22/3, 38/4
NFFS Symposium Report 2004	104/10
NFFS Symposium 2005, call for papers	64/6
Obituaries	
Joe Foster	28/3
Gyorgy Benedek	40/5
Peter Harris	66/7
R B (Bob) Meuser	105/10
Postal competitions	
Cloud Tramp 2004	124/11
Herman Jenne' Tailless 2003	36/4
KeilKraft Senator Global	124/11
Worldwide 2003/4	35/4
Worldwide 2004/5	48/5
Power and Nostalgia rules	16/2
Rubber, A Longhurst	5/1

Salisbury Plain	19/2
Stonehenge Cup	50/5
Tropik F1A	70/7
World Cup	38/4, 50/5, 77/7, 92/8, 116/10, 134/12, 138/12

ITEMS FOR SALE

10 days in Hungary	134/12
Free Flight Forum Report	50/5
Silicon lubricant	138/12

CONTEST RESULTS

Chronological order	
Coupe Europa, Barkston Heath, Nov 30	18/2
Church Fenton (John Godden), Dec 21	3/1
Church Fenton (Dennis Davitt), Dec 28	3/1
King Orange International, Dec 29-31	24/3
Church Fenton (Kelly), January 4	18/2
Maxmen, Lost Hills, USA, Feb 13-16	22/3
BMFA Winter Open, Sculthorpe, Feb 16	25/3
Criterium Phillipe Lepage, France, Feb 28	33/4
Bear Cup, Pori, Finland, March 6	33/4
BMFA First Area event, March 7	34/4
Holiday on Ice, Gjøvik, Norway, Mar 20	34/4
Matfors VT, Sweden, March 27	43/5
BMFA Second Area event, March 28	35/4
BMFA Northern Gala, Ch Fenton, Apr 9	44/5
Australian FF Champs, Australia, Apr 10	43/5
Morley one design, Ch Fenton, Apr 12	45/5
Crookham comb power, M. Wallop, Apr 12	46/5
Croydon Wakefield, M. Wallop, Apr 12	46/5
City Cup of Lucenec, Slovakia, April 17	43/5
BMFA First team selection, Sculthorpe, April 24-25	43/5
Free Flight Nats, Barkston, May 29-31	54/6
Southern Cross Cup, Australia, Apr 13	58/6
Kotuku Cup, Omarama, NZ, April 19-21	59/6
Omara Cup, Omarama, NZ, April 22-25	59/6
Kup Slavonije Baranje, Croatia, Apr 24	59/6
Baltic Cup, Lithuania, Apr 30	58/6
Estonian FF Cup, Lithuania, May 1	59/6
BMFA Spring open/mini/club, Salisbury, May 1-2	61/6
Coppa Sisemol F1E, Italy, May 7-9	60/6
Scottish events, Newbigging, May 8-9	71/7
Liptov Cup, Slovakia, May 15	60/6
21st Srem Cup, Serbia, May 15-16	60/6
Mayor Cup, Slovakia, May 16	60/6
BMFA Third Area event, May 16	60/6
Sezimovo Usit Czech Republic, May 21	59/6
SE Area BMFA/SAM35 Spring Gala, Odiham, May 23	63/6
20th Pusztá Cup, Hungary, May 29	59/6
Indoor International, Bordeaux, May 29	74/7
Novohrad Cup of Slovakia, Tass, Hungary, June 5-6	60/6, 71/7
Taca Von Hafa, Beja, Portugal, June 5-6	71/7
BMFA Fourth Area event, June 13	87/8
Napoca Cup, Romania, June 17-18	71/7

Turda Cup, Romania, June 18-19	71/7
DJ Zigic, Zrenjanin, Serbia, June 19	71/7
Oxford Rally, Port Meadow, June 19-20	72/7
Scottish Nationals, Newbigging, June 26	73/7
Gliwice, Poland, June 26-27	85/8
Kazan cup, Kazan, Russia, June 26	108/10
BMFA Indoor Nationals, Dome, Jun 28	75/7
Scania cup, Rinkaby, Sweden, July 2-4	85/8
Kharkiv Cup, Kharkiv, Ukraine, Jul 2-4	86/8
Devon Rally, Woodbury Common, Jul 3	89/8
Nordic Cup of Denmark, Rinkaby, Sweden, July 5	86/8
Antonov Cup, Kyiv, Ukraine, July 9-11	86/8
Vörös Jeno Memorial, Hungary, Jul 10	100/9
Morley Nostalgia P, Ch Fenton, July 11	90/8
Odesa Black Sea Cup/Moldova, Ukraine, July 16-18	86/8
BMFA Summer Mini, N Luffenham, July 17	87/8
Huron Cup, Canada, July 17-18	108/10
Brumfly, North Luffenham, July 25	90/8
Beauvoir-sur-Niort, July 30 to Aug 1	97/9
Buzau Cup, Romania, Jul 31-Aug 1	87/8
Tynemouth Mini, Newcastle, Aug 1	110/10
Poitou, Thouars, France, August 5-7	98/9
Summer Cup, Poland, Aug 6-8	99/9
Izet Kurtalic, Bosnia-Herz, Aug 14	108/10
Welcome to the Pleasure Drome, Church Fenton, Aug 15	101/9
Salzland cup, Germany, Aug 20-22	100/9
Non W.Cup events	112/10
Timperley Open Day, North Luffenham, August 22	101/9
Israel Champs, Beer Sheva, Aug 27	133/12
Una Cup, Bosnia-Herz, Aug 28	108/10
BMFA Second Team Selection, Salisbury Plain, Aug 28	109/10
Eifel Pokal, Zülrich, Germany, Sep 2	108/10
BMFA Southern Gala, Little Rissington, Sept 3	111/10
Siscia Cup, Sisak, Croatia, Sept 4	108/10
Scottish events, Newbigging, Sept 4-5	112/10
F1E Hungary, Slovakia, Sep 4-5	106/10
Canada Cup, Borden, Canada, Sep 4	122/11
F1E International, Rana, CZE, Sept 9	106/10
BMFA Fifth Area event, Sept 12	110/10
Aviaprom, Orel, Russia, Sept 16-18	122/11
Stonehenge Cup, Sculthorpe, Sep 18	108/10
Stonehenge Cup correction	138/12
Rybnik Cup, Lubomia, Poland, Sep 24	132/12
Governors Cup, Poland, Sept 25	132/12
BMFA Third Team Selection, Sculthorpe, Sept 25-26	109/10
Krka Cup, Slovenia, Oct 8-10	123/11
Oberkotzau F1E, Germany, Oct 8-10	123/11
BMFA Sixth Area event, Oct 10	122/11
BMFA F1E	122/11
Sierra Cup, Sacramento, USA, Oct 15	123/11
Crookham Combined Power, Middle Wallop, Dec 5	136/12