

Free Flight news



CONTENTS

FFn	2	UK supporters at World Champs	7
TUMBLEWEEDS, F1G BY J LEWIS	2	Glider DT problems	7
FAI Sporting Code	2	Composite structure design guidelines	7
CIAM Calendar 2003	4	News from BMFA FF Technical Committee	9
2003 Leagues	4	Salisbury Plain for all	10
Cleemac Winter Contest, Church Fenton, Dec 1	5	Correspondence	10
NA News December Dazzler, Church Fenton, Dec 15	5	Woodbury gala	11
Prima events	6	UK Competition News	11
Indoor records	7	FFn Index 2002	12

DIARY

January 12 Church Fenton	All-in power, O/G, VG, Classic G, Combined P30+CdH. All 3 flights, CD A Kelly, 0113 2539944	March 8 Pori, Finland	Bear Cup . F1A, F1B, F1C World Cup event. Entry fee €25. Contact: Kari Lindgren, Muonamiehentie 5, 28610 Pori, Finland., tel +358 263 24988, email: pipo.lindgren@kolumbus.fi, web: http://www.kolumbus.fi/porinik/
January 26	Comb Glider, Comb Power, Comb Rubber. See UK competition News, page 11. Contact: G Ferer 0161 928 4955.	March 9 Crivelle, TO, Italy	Trofeo AGO. F1K. Entry fee €20. Contact: Sandro Schirru, Via Cavour 5, 10095 Grugliasco TO, Italy, tel +39 011 780 1788.
February 2 Middle Wallop	Crookham Gala. Mini Vintage, Comb SLOP & Open Electric (Glow 10 sec, Diesel 12 sec, Elec 30 sec run); Combined glider (modern G BMFA rules 50 m lines, classic/vintage G SAM rules - classic 75m, vintg 100m lines). Start 10.00. See FFn 0212. Contact J Thompson, 01252 842471, JohnD.Thompson@btinternet.com	March 16 Area venues	BMFA 2nd Area. O/G, F1B (Weston/Plugge), F1J/BMFA½A (Plugge), HLG, Cat Glider
February 2 Church Fenton	Vintage/Pannett/Kay. O/G, Combined O/P+SLOP, Open vintage, Combined mini with total target 3 or 4 flights and no max.. Start 9.30. CD to be decided. Contact D Davitt, 0113 2675433	March 22-23 Guovik, Norway	Holiday on Ice. F1A, F1B, F1C World Cup event. Entry fee NOK 250.. Contact: Tor Bortne & Vegar Nereng, Jernbanev 28, 2840 Reinsvoll, Norway, tel: +47 611 97 463 or +47 611 96 736, fax: +47 611 98 351 or +47 611 52 606, email: margit.bortne@c2i.net
February 14-17 Lost Hills, California, USA	Maxmen International. F1A, F1B, F1C World Cup event. Entry fee US \$20 Contact: George Batiuk, 1759 Southwood, San Luis Obsipo, CA 93401, USA, tel: +1 805 546 82 31, fax: +1 805 543 35 71	March 23 Church Fenton	BMFA Northern Gala. O/G (CMA), O/R (Caton), O/P (Hamley), SLOP, F1G, FIH, F1J/BMFA½A, Mini-vintage, CO2, E30, HLG, Catapult Glider. Contact: D Davitt, 01727 764473
February 16 Wymeswold	BMFA Winter Open. O/P (Frog Senior), O/R, O/G,SLOP, EOP, Vintage. Contact B Spooner 01572 737281, CD I Davitt	April 6 Area venues	BMFA 3rd Area. O/P + SLOP combined (White), F1A (KMAA/Plugge), F1G, Vintage (Plugge)
March 2 Area venues	BMFA 1st Area. O/R, (Gamage), F1C (Halifax /Plugge), FIH, Mini-Vintage (Plugge)	April 19-20 Salisbury Plain	BMFA Easter Open and Team Selection. 19th: O/R. O/G, O/P, F1G, FIH, F1J/BMFA½A. 20th: F1A, F1B, F1C, SLOP, Vintage

FFn

This issue is being sent to everyone who has a current subscription paid for this month, thanks to everyone who has renewed their subscription. Note that for renewals later during this year, the subscription rates have been increased slightly to £16 in UK, £18 to Europe and £22 worldwide.

Specific FFn email address is now ffn@btinternet.com. Please note this address because the previous Compuserve address will be discontinued shortly.

I have now revised the FFn information web site to include a facility for online payment subscriptions, back number or NFFS Sympo. The home page

<http://www.btinternet.com/~kaynes/ffn.htm>

contains the general information on FFn and links to the online version of the FFn Diary and to the online subscription page, which you can also access direct at:

<http://www.btinternet.com/~kaynes/ffnbuy.htm>

The payment is via Paypal and accepts credit cards or transfers from US bank accounts. The prices are given in UK £ only and foreign currency payments will be charged to your account with the normal credit card exchange rates. This should be considerably cheaper than the other options of obtaining a cheque or money order in UK £ to mail to FFn or the quoted US \$ rates for subscriptions, which include the high cost of changing \$ cheques in the UK. Of course, the established means of mailing a cheque or money order to FFn are still available if you prefer. Note that our bank no longer accepts Eurocheques.

TUMBLE WEEDS BY JOHN LEWIS

From Free Flight Down Under.

The evolution of Tumbleweed began around 1970 when I designed a small model with a built up motor pod and an aluminium arrow blank for the boom. This model was called Tumbleweed 1 and began a long dynasty of successful designs. Tumbleweed 2 was built for the 1978/ 79 Nationals held at Amberley. The model was based on Dave Hipperson's R2D2 and used the common coupe wing section B7406F. This model won the Nats and has been successful in many hands. (The plan appeared in Airborne and is available full size).

A couple of years later Tumbleweed 3 was created as a large right/right trim model that won at least one State Champ event and the QLD Big Bird contest, but as with most large Coupes suffered in windy conditions. Meanwhile, Ben was flying fast climbing small Coupes using the Garter Knight wing design and was always ending up amongst the placegetters. Flying in a variety of conditions Ben's approach was more successful. I therefore went back to a model closer to Ben's in size but used a very small motor tube. I had trouble with the prop folding on the wing and with the prop stop being unreliable.

Tumbleweed 5 copied Ben's fuselage and prop stop but used the wing and stab from model 4. This model has proved very successful and consequently has been used for around 10 years. How to improve on this model became the challenge for Weed 6. Over the last few years Ben has been considering a mini FIB approach for Coupe models and recently produced a couple of drawings that had high aspect ratios and small tailplanes which

influenced my thinking for a new design. Ben felt I didn't go far enough and built his own design with a much higher aspect ratio. The fuselage of my No 6 has an Alex Andriukov FIB 30-28 motor tube (cut down), 2 piece joiner, rear boom and stab mount, an Alex style fin and stab configuration and modified Alex wing section. The wings are balsa with carbon TE and carbon capping and like the fuselage are 2 piece. I am using a Tomy timer in preference to a button for a more consistent DT setting. The wing has less dihedral than number 4 - 5 and less area. The model has a good fast climb which even impressed Ben (things I do don't always impress Ben).

Weed 7 is currently under construction and features more area by adding an extra rib bay to both the inner and outer wing panels and an increased stab span. I have gone back to a rolled balsa motor tube (silk covered) and glued the Andriukov inner joiner into this thus making a one piece fuselage and hopefully a lighter model. I have also changed the front end back to a design used on Weed 5. The drive pin is epoxied into T6 tubing and fixed to the shaft with a 3mm grub screw. This allows for easy removal and the use and adjustment of a compression spring. The prop shaft runs through two 2mm sealed ball races. The prop blades have a threaded stud which screws into the prop assembly allowing for pitch adjustment via a lock nut. Both 6 and 7 models are mylar covered. The tracker is housed in the pylon with the aerial passing between the wing halves.

FFDU is edited by Vin Morgan, and you contact him at 644 Canning Street, Carlton North 3054, Australia, vin.morgan@utas.edu.au

FAI SPORTING CODE

The Aeromodelling part (Section 4) of the FAI Sporting Code for 2003 has been published on the FAI web site during December. You can access it from the Aeromodelling page of the FAI web site:

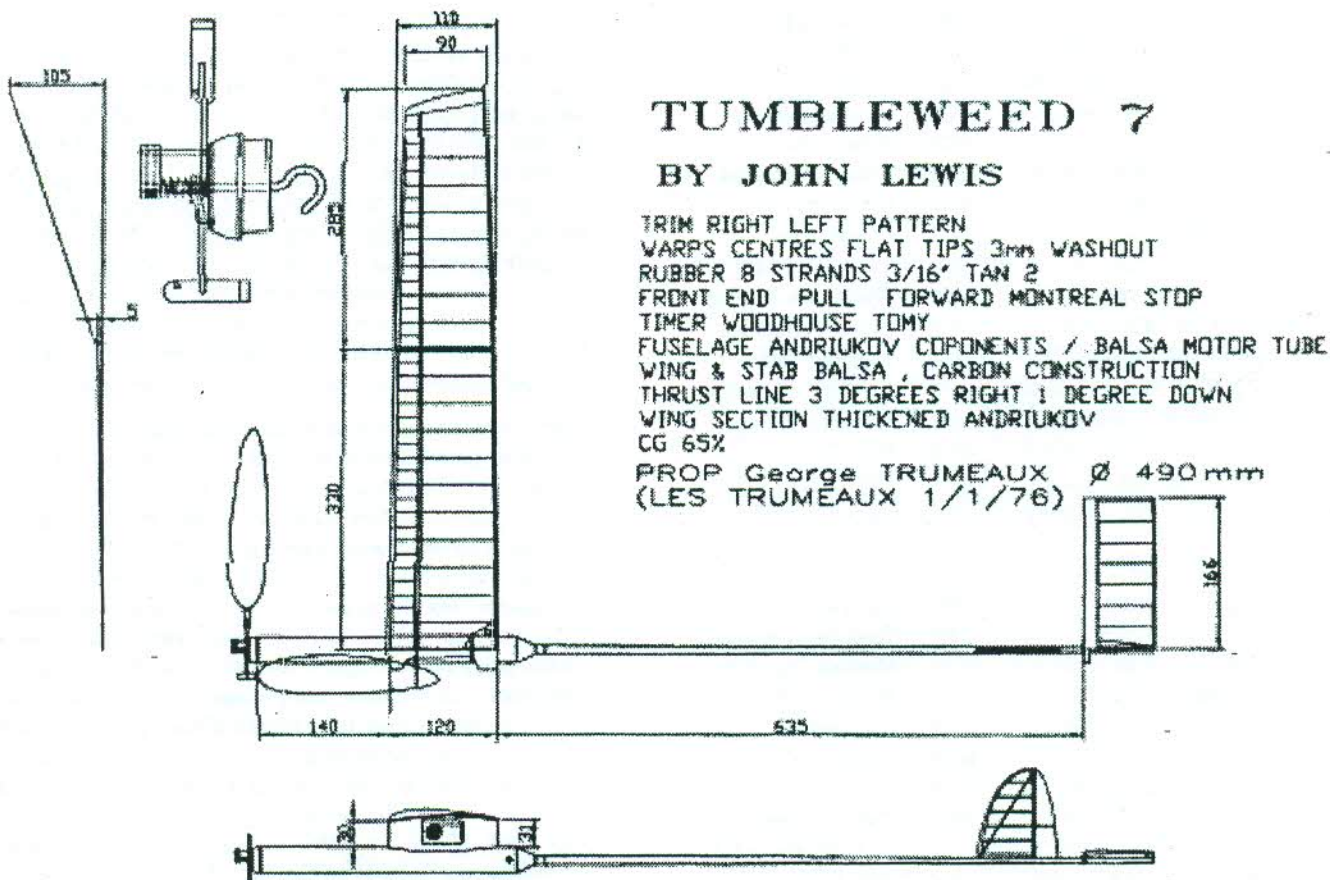
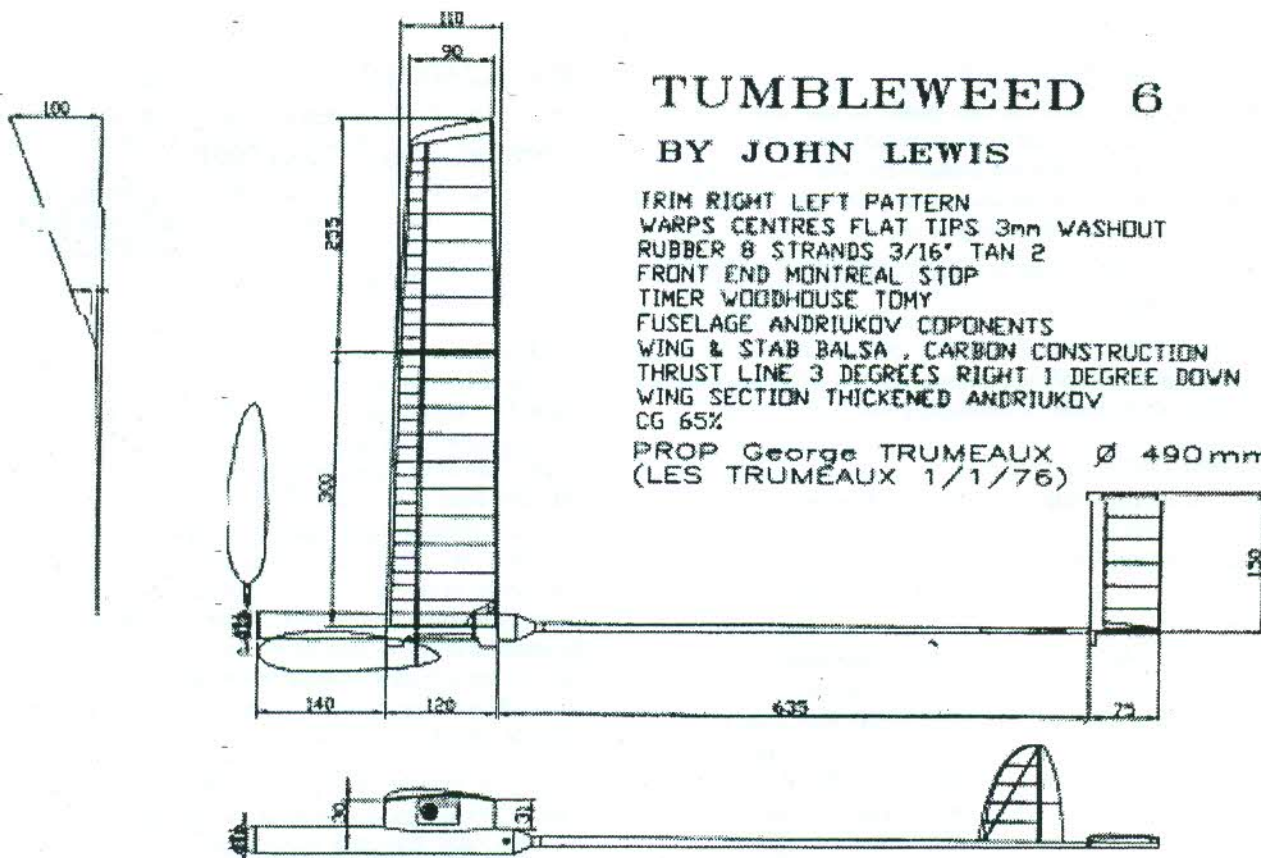
<http://www.fai.org/aeromodelling/>

and follow the link announcing the publication of the Sporting Code.

Alternatively, if you do not want to read the release announcement you can go direct to the Sporting Code download introduction at:

<http://www.fai.org/aeromodelling/documents/sc4.asp>

Assuming your interest is free flight, you need to download the Free Flight volume F1 and also the General; part volume ABR. An amendment sheet describes the changes incorporated in the 2003 Code, generally small changes for Free Flight. As well as the rules for all FAI free flight duration classes, volume F1 also contains the World Cup regulations and also the Organisers Guides for indoor and outdoor free flight competitions. The Organisers Guides had previously been issued as separate documents, and I hope that they will have more visibility as a result of inclusion in the main F1 volume.



CIAM CALENDAR 2003

From the provisional calendar published last month, the Von Hafe Cup in Portugal has changed dates from June to September 12-14 and the Castilla La Mancha in Spain has moved from October to September 20-21, unfortunately now clashing with Stonehenge Cup.

There are 2 F1E World Cup events at Rana in Czech Republic on May 2 and 3.

Revised quick-reference list of the 2003 World Cup events is below. For details of the events see the full calendar listing last month (subject to the date changes given here).

World Cup F1A F1B F1C

Feb 14-17	Lost Hills	USA	Maxmen
Mar 8	Pori	FIN	Bear Cup
Mar 22-23	Guovik	NOR	Holiday on Ice
Apr 19-20	Naranderra	AUS	Australian Champs
Apr 22-23	Naranderra	AUS	NSW Champs
May 1-2	Madziunai	LTU	Baltic Cup
May 3	Madziunai	LTU	Estonian FF Cup
May 10	Vojka	YUG	20th Srem Cup
May 23-25	Vsechov	CZE	Jihocesky Pohar
May 30-J.1	Kunszentmiklós	HUN	19th Pusztá Cup
Jun 14-15	Prilep	MKD	Prilep Brand
Jun 21	Zrenjanin	YUG	35th DJ. Zigic
Jun 27-30	Kazan	RUS	Cup of Kazan
Jun 27-29	Gliwice	POL	Open International
Jul 4-6	Kharkiv	UKR	Kharkiv Cup
Jul 11-13	Rinkaby	SWE	Scania Cup
Jul 11-13	Kiev	UKR	Antonov Cup
Jul 12-13	Borden	CAN	Huron Cup
Jul 14	Rinkaby	SWE	Nordic Cup (Denmark)
Aug 2-3	Kunszentmiklós	HUN	Vörös Jenő
Aug 8-9	Noizé, Thouars	FRA	Poitou
Aug 8-10	Stalowa Wola	POL	Summer Cup
Aug 29-31	Hakeborn	GER	Volkswind
Aug 29-30	Beer Sheva	ISR	Israel FF Champs
Aug 30	Bosanski	BIH	Una Cup
Aug 30-S.1	Borden	CAN	Canada Cup
Sep 4-7	Zülpich	GER	34th Eifel Pokal
Sep 6	Sisak	CRO	Stjepan Paulin Cup
Sep 7-9	Orel	RUS	Cup of Aviaprom
Sep 12-14	Beja	POR	Taça von Hafe
Sep 20-21	Lillo, Toledo	ESP	Castilla La Mancha
Sep 20-21	Sculthorpe	GBR	Stonehenge Cup
Oct 10-12	Novo Mesto	SLO	Krka Cup
Oct 17-18	Sacramento	USA	27th Sierra Cup
Nov 1-2	Mühlenturnen	SUI	Euro-Fly 2003

World Cup F1E

May 2	Rana	CZE	Open International 1
May 3	Rana	CZE	Open International 2
May 9	Liptovsky Mik.	SVK	Mikulas Cup Hungary
May 16-18	Sisemol	ITA	23. Coppa Sisemol
Sep 5-6	Cluj Napoca	ROM	Napoca Cup
Sep 10-11	Turda	ROM	Turda Cup
Sep 13-14	Liptovsky Mik.	SVK	Liptov
Sep 26	Lubomia	POL	Open International 1
Sep 27	Lubomia	POL	Open International 2
Oct 11	Oberkotzau	GER	World Cup

2003 LEAGUES

By Dave Hipperson, contest director of all the leagues

Timperley League Rules 2003

Qualifying contests including details of all classes to be flown must be advertised in advance in Free Flight News and must be open to all. The season shall be from December 16 to December 15 inclusive.

Qualifying contests shall be all those outdoor Free Flight duration events run in the UK which are not under the direct control of the BMFA Council - i.e. not what is known as BMFA contests. Neither shall they be experimental BMFA contests nor any contest run by or on behalf of the BMFA Free Flight Tech. Committee. Contest shall be run as advertised. Failing full rule details these shall be assumed to be as per current BMFA procedure except for exclusions stated later or where advertised as different in advance. All events shall be run with the Builder of the Model rule (as per BMFA rule book 1998) in place. (Non-BoM events either deliberate or accidental will not be considered in the Timperley League. In addition no F1A, B or C events of *any sort* shall be considered as experience has shown that when these are run they are now invariably run without a BoM).

All events shall be run to the conventional duration format. That is termination or interruption of flights shall always be at the contestants discretion whether qualifying contest flights or flyoff flights. Contest which involve contestants having to make official flights, during which any part of the timed portion of the flight involves models being flown in something other than conventional climb or glide trim shall be void as far as League points are concerned. Furthermore events so much as advertised as possibly including such rules shall also be void even if those rules are not actually applied on the day.

Events advertised as Champagne or Progressive flyoffs will be eligible but otherwise the number of flights will be expected to be at least three unless such differences are advertised in advance. If events are to be flown in rounds this too must be published in advance. Adjustments to 'Combination events' (i.e. exactly what is to be combined with what) may be made on the day and CDs are also allowed to decide policy on: multiple entry, re entry, towline length, engine run and max on the day. Contests must start within one hour of the advertised time or 11am if no time has been stated in advance. Deviations from the above will void the contest's League points and may positively exclude it from the Leagues the next year.

Contestants may count only their best eight results thus the maximum possible score is $8 \times 9 = 72$ points. (Point scoring will be as per BMFA Senior Champs 1998. 9 for 1st, reducing to 1 for 6th and capping off the top points in the event of less than six recorded scores). Scoring can be only from one event per day and in that event, only one score, the contestants best, will count. This *day* is understood to be the day on which the complete event including flyoffs *concludes*. Ties for overall classification in the League will be resolved by awarding to the contestant with the most first places contributing to his score. If that is not decisive then second places will be taken into consideration and so on until the tie is resolved. If this too does not resolve the tie then placings for the contestants 'throw away' scores shall be taken into account once again starting with firsts. If that too fails to break the tie then placings in events that were scored on the same day as eligible Timperley scores will be taken into consideration.

Most SAM events are not eligible because so many of them are arranged on an ad-hoc basis. However the three Wakefield classes at the SAM Euro Champs will count even if not advertised in FFn. The following events are also not eligible: Any free flight duration event run on RAF Odiham plus Rod Audley's Glider Day.

Aeromodeller Overall League 2003

Contest Director D Hipperson

The Aeromodeller Overall League accepts scores from all Timperley League qualifying events plus the BMFA events that maintain the BoM. (Points scoring as per 1998 Senior Champs) - all contest placings to count including those on the same day but not multiple placings in the same event.

Open Rubber Trophy League 2003

Contest Director D Hipperson.

The Open Rubber Trophy League has restrictions as per the Timperley League and scoring as per BMFA Senior Champs 1998. All qualifying events must retain BoM as per BMFA rule book 1998. No Champagne flyoffs or contests with less than 3 qualifying flights will be eligible. Contestants for 2003 will be able to count their five best placings from:- BMFA Winter Open, BMFA Easter Meeting, Woodbury Weekend, BMFA Nationals, Scottish Nationals, Timperley Gala, BMFA Southern and Northern Galas, BrumFly and Falcons Gala. There will be a 'windy weather bonus' - points awarded at the windiest contest of the season will be doubled.

Important note to CDs.

The league system outlined above has been designed to and has proven successful in, encouraging and finally listing overall competitor performance on an annual basis. Moreover by way of its insistence on accurate advance publicity for all contest that wish to qualify it is hoped that it creates a level playing field over which competitors can have confidence. Confidence that what is advertised will occur and hence encourage them to attend and as a result encourage entries in all advertised Gala and Club run events. It has not been designed to trap CDs nor to be used as a political tool to unfairly void events. Partly towards this end there have been some small changes to the rules for 2003 (changes are underlined).

CLEEMAC WINTER CONTEST

Church Fenton, December 1. Report by Dave Hipperson

Not so lucky with the weather this time at least for the start, heavy rain, low cloud and poor visibility! By mid-morning this cleared and the drift picked up to stiff from the West to give very similar conditions to that which had prevailed at the Falcons Gala a months before complete with the vicious sporadic turbulence. This is mysterious. There is no obvious hindrance to the wind flow on the western perimeter but a number of people had very real trouble. A couple of well known names suffered badly enough in Mini Vintage to record zero scores and even the eventual winner - just two maxes won it - had to re-enter! The less said about Glider the better but at least Robinson's score was respectable. It was combined power once again that stole the show.

Two flights by 2pm had proved relatively easy although regulars Clarkson, Limbert and Wilkinson all dropped their first and retired despite the availability of re-entry. Final unlimited flights could be taken between 2 and 3pm. Hipperson

had declined to take his second in Nostalgia as the first went so far. A mistake, as around 2pm the wind eased when by rights with the clearing sky it should have increased. Indeed by 2.15 it was little more than 10 mph, but still with turbulence at altitude which Hipperson's 'flyoff' in Slow Open hit and flipped over to record a meagre score. The other finalists waited a little while longer but Foster's still wobbled. Rushby and Cordes went last and close together and both made excellent flights. Cordes with his Slow Open design and Rushby with a Creep and, please note, he had an identical model waiting to fly if the first overran. However his troubles were rather the reverse of an over-run. A slightly too energetic throw stopped the motor almost immediately but not quick enough for it to stall in. It eased over the top of the short trajectory and glided an agonising circuit to ditch at 19.5 sec. His re-flight was perfect and the match for Cordes who followed into the same useful air but suffered again some kicks on the way up from the turbulence wall.

Once again a well judged balance of events and timings allowing people to do plenty of flying if they felt energetic but still be in contention if they didn't. The second event this club has run this season and as before an excellent one.

Open Glider 2.30x2 flts

1	P Robinson	4.34
2	G Beal	2.48
3	G Peck	2.36
4	A Kelly	2.20
5	K Bates	1.14
5	D Davitt	2.00

Mini Vintage 2.00x2

1	J O'Donnell	4.00
2	P Woodhouse	3.56
3	M Sanderson	3.50
4	J.Northrop	3.24
5	G.Beal	2.00

Comb Slow Open/Nostalgia Power (2.30x2) 9 fl

1	F Rushby	5.00+4.34	Creep
2	A Cordes	+4.01	Slow Open
3	E Jones	+3.30	Glow Worm
4	C Foster	+3.13	Dixielander
5	D Hipperson	+2.04	Slow Open
6	D Hipperson	2.30	Dixielander

N.A.NEWS DECEMBER DAZZLER

Church Fenton, December 15. Report by Dave Hipperson

Possibly the ultimate combination event. Complex but envisaged by the master of such things John Godden, a man with no small experience and always a great sense of adventure. When you look at the entry numbers consider for a moment the weather. Continual rain, it really did never stop all day, a maximum temperature of 5°C and a breeze most of the time that took maxes the length of the drome! The intention had been to offer something for everyone and by combining classes guarantee decent numbers. This didn't quite come off in two of the four events but for a weekend so near Xmas and such extreme wintry weather attendance was quite fantastic.

This was the very last contest of the official league season and as is common the Timperley League result was still in the balance. Hipperson and O'Donnell were neck and neck on points and no change would have given it to the former by a whisker on count-back. Were either of them to win and the other falter it would go their way. John made a tactical error at the start being duped into thinking there were more entries in small mini than there actually were. When he realised after two maxes with his P30 that a win would not be scoring the necessary points he switched to Mini Vintage but too late. A spate of breaking motors - so time-consuming with the turns that go on in this class - made the last flight a dash with a

model not completely dried out. Launched on the hooter, it was back on the ground again not long after the end of the blast! Hipperson had come in somewhat resigned mood convinced John's recent surge was sure to take him through especially after foolishly easing up at the Cleemac a fortnight before and depriving himself of a couple of cracks at the flyoff. Furthermore confidence takes a battering when ones opponent, despite missing a number of major events at the start of the season when ailments afflicted June his timekeeper then suffers a heart attack and is off for six weeks and misses still more, can still be breathing down your neck! Here he was close to winning and it would have made a fairy-tale ending. However this was not to be and his last flight crash put the result in no doubt. The league winner then made absolutely sure with an emphatic double win, something he has only managed once before this season and not in two power classes!

Dave Clarkson who, it will be remembered, had such a super start to the year continued his current run of bad luck when his second flight with his brand new and very impressive looking Slow Open model managed to knock both tips off on a fence. So the main events went to quite small flyoffs still in the rain and increasing dark despite the 2.15pm ending. All day air had been quite dead but most flights were suffering the weight of the water by their end. Still puzzling how the Open Rubber finales could have been so poor in the same period as the Popular Combined which in practice had become a power event. The top two were in the air very close together and made an interesting study as Grey was flying his EOP, now with a larger wing since his flyoff flight here of a month before. The model seemed to climb every bit as well - possibly better which is often the case with relatively heavy models and the glide and general visibility were also much improved. In short a very hot model. Against this Hipperson's mid size '100 sq inch T34 still quite new and light with only half a dozen flights to its credit and none for 6 months. (The PAW model with which he qualified was giving engine trouble.) The Slow Open model climbed well - the EOP was lower but the power model was descending and the electric seemed to be gliding better beneath. They were closing up when Grey's model DTed. Some sort of foul up on timer setting, as it was supposed to be locked off. Pity as we will never know but it looked mighty close. This cosy little arrangement could of course have been spoiled by Ewan Jones but a mislaid model on the last flight delayed him assembling a reserve and the hooter blew before he could get the model airborne.

The Mainly Mini class had two electrics, Gerry Ferer's Buckeridge and Hipperson again this time with his British Power. Both E30s flew well but did not glide enough to threaten the power model which further rubbed it in by finding some buoyancy in the last couple of hundred feet. Everyone and everything was now soaking wet and cold but John Godden's dodge of giving raffle tickets away to everyone who entered did the trick. A well attended prizegiving and mostly in the dry as John's awning over the control desk could accommodate a couple of dozen people.

Full details of the league final results will appear next month but in the mean time perhaps next years contest directors would like to take a close look at John's combination ideas. They were pretty well balanced and created a full contest on a *bad* day. (Any old formula works when it's warm and calm.) Within reason this combination system is the way to go apart from one glaring exception discussed elsewhere and in the unlikely event of being swamped with entries then the CD can

always award extra prizes to the top fliers in each of the disciplines. Very flexible and we are hearing very few complaints. Study carefully please.

Combined O/R and O/P

1	T Dobson	9+4.46	3.00x3 flights
2	C Foster	+3.55	
3	W Hodgkinson	1.11	

Combined Mini - C02,CDH, P30,A1, BMFA 1/2A

1	J O'Donnell	4.00	2.00x3 flights
2	G Perkins	3.48	
3	P Robinson	2.37	

Combined 'Mainly' Mini - E30, Nos.& Tailless Glider,Mini Vint R/P,Brit Power 2.00x3 flts 16 fl

1	D Hipperson	6.00+3.50	Brit Power
2	T Grey	+3.13	E30
3	R Briggingshaw	+3.04	E30
4	G Ferrer	+2.27	Mini V.Rubber
5	G Beal	5.58	Nos. Glider
6	P Lang	5.57	E30

Combined 'Popular' SLOP, Nos. P, EOP, Vintage R/G/P, Tailless R/P, F1J 2.30x3 flts 16 flew

1	D Hipperson	7.30+4.26	Slow Open
2	T Grey	+2.50	EOP
3	E Jones	7.30	Slow Open
4	S Barnes	7.21	Slow Open
5	D Limbert	7.16	Slow Open
6	I Wilkinson	6.32	Slow Open

PRIMA EVENTS

September 15

The Prima event was held at Sculthorpe at the same time as the Stonehenge Cup. The weather was reasonable, much less wind than in 2002.

The event was run by Geoff Kent with technical assistance by Mr. Prima, Igor Vivchar himself. This year Pat Turnbull beat husband Glynn to win the event. Glynn was doing well and looked as if he would push things to a fly off, however this was not to be as the model spun in on the glide from a height that should have been sufficient for a max. Junior Daniel Billam was going well, but a premature D/T on his second flight put pay to his chances. Barry Halford had a horrible day, the first and second flights saw the prop fold on the wing when the Montreal prop stop failed to engage. Igor took things apart and sorted with the result that the last flight had a perfect fold and a max. The pictures include Barry and Igor working on the rebuild.

1	P Turnbull	120	120	120	360
2	J Whitby	120	110	117	337
3	D Billam (J)	120	69	120	309
4	G Turnbull	120	120	65	305
5	D Beales	110	99	41	250
6	B Halford	50	42	120	212

October 20th

Report and results from David Beales

The competition was flown in breezy conditions and the occasional spells of drizzle in conjunction with the Croydon Wakefield event at Middle Wallop. Pat Turnbull again beat husband Glynn who is now making a habit of spoiling his last round flight. David Beales got his act together, this time,

making a considerable improvement to the scores made at Sculthorpe a few weeks earlier.

1	D Beales	97	120	114	331
2	P Turnbull	120	91	83	294
3	G Turnbull	120	120	14	254

Prima 2003

I have been asked if we would be running the event again. So it has been decided to repeat the exercise again in 2003.

There will be two events both run with other contests: -

1. September 21st in conjunction with The Stonehenge Cup at Sculthorpe
2. October 19th in conjunction with the Croydon Wakefield day at Middle Wallop

These two events will be run to a 3 x 2 minute flights, in rounds, plus an unlimited fly off. It is expected that Igor will be at the Stonehenge event to offer help and assistance.

Geoff Kent and myself will be on hand to help.

In addition it has been decided to add a worldwide postal contest as well for those overseas who want to join in the fun. The postal will be to 5 x 2 minutes plus an unlimited fly off. The flights to be made on any single day in September or October. The results are to be sent in within 10 days of making the flights. The scores are to be signed off by your timekeeper. Lets hope for better entries in 2003.

You can fly the basic Prima, either built from the kit or the ready to fly model. There are Prima's that have been improved, with the addition of upgrade parts, these models are eligible. What we ask is that the model is still following the basic prima concept. If in doubt please ask.

If you want further details of the events or the model please contact me. I have the kits and the parts in stock.

M Woodhouse

INDOOR RECORDS

FAI has ratified the following two records by Jim Richmond:

Class F1 Open, record no. 115-c duration (ceiling 15 m - 30 m): 47 min 19 sec by James Richmond (USA) at West Baden, IN (USA) on August 4. The previous record was 45mn 14s by Robert Randolph (USA) on September 26 1993.

Class F1D, record no. 125-c duration (ceiling 15m - 30m): 33 min 47 sec by James Richmond (USA) at West Baden, IN (USA) on August 4. The previous record was 28 min 08 sec by Dezso Orsovai (Hungary) on August 20 2001.

UK SUPPORTERS AT WORLD CHAMPS

The 2003 World F/F Championships will be held at Kunszentmiklos, Hungary from July 27th to August 2nd and will be followed by the Jeno Voros World Cup contest, which is open to any flyer with an FAI licence. Our supporters can make an important contribution to the success of the UK team, so if you want to be part of the premier event on the free-flight calendar, contact the team manager, Martin Dilly before Feb. 20th. Limited accommodation has been booked at the Savoyai Kastely hotel in Rackeve, which appears to be a considerable improvement over the hotel the team was in last year. Send an s.a.e. to him at 20, Links Road, West Wickham, Kent BR4 0QW, fax or phone on 020 8777 5533 or e-mail martindilly@compuserve.com.

GLIDER DT PROBLEMS

From Colin Sharman:

Although I am not currently active in Free Flight, I do still read FFn avidly, and followed with interest the recent correspondence on DT problems with Gliders. Some 8 -10 years ago I also experienced considerable problems with A/2's flat spinning on D/T. I spent a long time trying precisely controlled DT angles, with only partial success. I eventually discussed the problem with a retired aerodynamicist, who suggested mounting small fins on each end of the tailplane. Each fin was the full chord of the tailplane, rising in a curve from zero height at the leading edge, to approx 25mm height at the trailing edge. The fins also needed to be angled outward by 30 degree from the vertical. These fins were in addition to the normal rear fuselage mounted fin and rudder. This instantly cured all the flat-spinning problems, and also resulted in the DT angle being much less sensitive, being effective at anything from 30 degrees to 45 degrees. They had no adverse effect on any other flight parameters. I subsequently used similar tailplane mounted fins on any A/2 that began to exhibit undesirable D/T tendencies. This may not be much help in the case of the Thunderking, if historical accuracy needs to be adhered to, but is effective for all non-vintage designs. Incidentally, I believe that Andy Crisp is absolutely correct in his comments on tail volume coefficient, as I also investigated this on my A/2's, but came to the conclusion that tailplane tip fins were a more desirable solution than enlarging the size of the tailplane in order to increase the tail volume coefficient, which would have had an adverse effect on glide efficiency.

COMPOSITE STRUCTURE DESIGN GUIDELINES

The following general discussion was taken from an article on composites in offshore oil provided by Don Thomson.

Design of a composite structure requires a good knowledge of how composites differ from traditional engineering materials, and what effect those differences have on analysis and manufacturing. Like metal alloys, composites are formed from two or more materials. Unlike metals, the composite constituents remain visibly distinct. This sets composites apart from metals in two ways:

Heterogeneity: As compared to metals and plastics, which are relatively homogeneous in all directions, composite properties vary from ply to ply. The fibres remain distinct from matrix, although individual plies are assumed to be homogeneous.

Directionality: Composite properties depend on the direction of the fibres. Most composites display some degree of material symmetry and thus are not generally anisotropic. Unidirectional plies are transversely isotropic (an orthotropic material with one isotropic plane); the most common laminates are specially orthotropic (with three mutually perpendicular planes of symmetry).

It is these properties, and not just their lower density, higher strength and stiffness, that give composites an advantage over isotropic materials. By exploiting nonuniformity and directionality, it is possible to tailor the material - not just the structure - for the load conditions.

Material selection and properties

The design process starts with determining the functional requirements of the component part. These requirements include:

Mechanical properties - tensile, compressive and flexural strength; elongation, impact resistance, hardness, density.

Thermal properties - thermal conductivity, heat distortion, heat resistance, flammability, thermal coefficient of expansion.

Chemical properties - resistance to acids, salt water and organic solvents; degree of water absorption; resistance to ozone, ultraviolet radiation and weathering.

With literally dozens of fibres and hundreds of resins to choose from, the composite material choices can be overwhelming. Fortunately, the design requirements usually dictate a narrow family of materials.

Fibres determine the overall mechanical properties of the structure, while the resin determines the overall physical properties of the structure. The resin matrix transfers the applied forces to the embedded high-strength fibres, helps the part resist the formation and propagation of cracks, and protects the fibres from damage due to environmental conditions such as corrosive chemicals. Stiffness or strength requirements determine whether glass, carbon or aramid should be used. Resistance to the expected environmental conditions (chemical, fluid and temperature) determines whether polyester, epoxy, vinyl ester, phenolic, thermoplastics or another resin class should be used.

Composite structures, or laminates, are defined by the orientation, thickness and material type of each ply. Multiple plies are used to build up a laminate to achieve the defined performance requirements. Plies with fibres parallel to the expected axial load are generally designated as 0° orientation; fibres perpendicular to the longitudinal axis are designated as 90° fibre plies can be oriented in any off axis direction desired, to give strength in that direction. If all plies are of the same thickness and material, a simple notation can be used to define the stacking sequence. The ply angles are simply written in order, from top to bottom of the laminate. The majority of engineering laminates are balanced and symmetric, meaning that there are identical plies (same material, thickness and orientation) at equal distances above and below the laminate midplane.

The response of a composite structure to tensile loads is very dependent on the tensile stiffness and strength properties of the fibres. Under compressive load, the adhesive and stiffness properties of the resin system are crucial, because the resin must maintain the fibres as straight columns to prevent buckling and transfer shear stress between the fibres.

Ply stiffness is a function of fibre angle. Adjacent plies with different fibre orientation have different stiffnesses. This mismatch means that stress is discontinuous between the plies. To maintain equilibrium, an interlaminar shear stress forms between the plies, in the thin layer of resin that holds the plies together. Under shear loads, the shear strength of the resin must be high enough to support these stresses, and must have good adhesion to the fibres.

The bearing strength of composites is usually lower than that of metals, and is a function of laminate layup design and torque. The failure mode is generally a combination of localized crushing, microbuckling and shearout.

Composites have some properties that may be non-intuitive to engineers accustomed to working only with metals. The two most important properties are shear coupling and bending-coupling. In shear coupling, a pure tensile or compressive load creates shear stresses in off-axis plies. In bending-coupling, a nonsymmetric laminate acts like a bimetallic strip. Application of a pure in-plane load, or even a temperature change, will cause the laminate to warp or twist. Bending-coupling is easily avoided by designing only with symmetric laminates.

Laminate design rules

Although the final stacking sequence will be determined through analysis, the following general rules provide a starting point. They also cover some issues that most analyses will miss. Of course, there are always exceptions to each of the rules.

- Fibres should be aligned in the direction of principal loads or stresses; for example, axially for a beam and circumferentially for a pressure vessel.
- Unidirectional laminates are somewhat fragile - some off-axis plies are necessary to hold the laminate together.
- Angle plies carry shear loads; $\pm 45^\circ$ plies are the most effective.
- Shells, even under pure axial loads, buckle in both the axial and circumferential directions. Hoop fibres are needed for stability.
- Constant angles are difficult to maintain, especially on doubly-curved surfaces. Account for variations in the analysis, and try to use a limited number of angles.
- Angle differences between plies should be minimized - $[0^\circ/45^\circ/90^\circ/-45^\circ]$ rather than $[0^\circ/90^\circ/45^\circ/-45^\circ]$ - to minimise interlaminar shear stresses caused by shear coupling.
- Nonsymmetric laminates hold their shape only at cure temperature. They will warp (for open sections) or develop significant residual stresses (for closed sections) at other temperatures. Symmetric laminates avoid this problem.
- Quasi-isotropic plies are isotropic in in-plane stiffness only. Strength and bending stiffness are not isotropic.
- Quasi-isotropic, Intermediate modulus carbon laminates have roughly the same stiffness as aluminum but about two-thirds the density.

Accurate material properties are not always available for composites. Generating a complete set of composite performance data is extremely expensive.

Analysis of composites requires four elastic constants and five strength constants, determined using five different tests. Therefore, materials are often selected based on whether or not property data is easily obtained. Most composites suppliers have considerable data available for designing with the materials that they offer, and can provide design guides and assistance, although some additional testing may be needed.

Joining

Whenever possible, multiple composite parts should be joined together during cure. This process is called “co-curing” and results in the strongest composite-to-composite bond. It also has the advantage of reducing part count and minimizing related machining operations.

Achieving good metal-to-composite bonds is more difficult. Because metals usually have a higher coefficient of thermal expansion than composites, especially carbon and aramid composites, the bonds can break if the structure is subject to large temperature swings. That is often why co-cured metal-to-composite bonds fail even before the part is put into service. Also, aluminum oxidizes rapidly, making it difficult to achieve a good bond to this metal. For these reasons, mechanical fasteners are often specified when joining composites to metals. Mechanical attachment can be effective, but care must be taken in designing such joints.

Drilling damages composites by severing fibres and reducing their length. Heat from machining can weaken or even destroy the matrix locally. Cut fibres interrupt the load path, and unidirectional plies will fray. Special drill bits designed for composites should be used to minimize heating and fraying. Using woven fabrics as the innermost and outermost plies also reduces drilling damage.

Properly torqued fasteners significantly increase the bearing strength of composites. Furthermore, quasi-isotropic layups provide the highest bearing strength. The ratio of edge distance to fastener diameter (e/D) should be at least 3:1 (e = the distance from the centre of the hole to the edge of the part; D = fastener diameter).

Comparison of composite properties to traditional material

Material	specific gravity g/cm ³	modulus (stiffness) GPa	tensile strength MPa	coefficient of thermal expansion 10 ⁻⁶ /°C	elongation %
T300 fibre	1.76	230	3600	-0.5	1.5
IM-7 fibre	1.76	276	5080		1.8
MS5J fibre	1.91	538	4033		0.8
K1100 (pitch-based fibre)	2.20	931	3172	-1.45	0.25
Aramid (Kevlar 49)	1.44	131	3600	-4.9	2.8
S-glass	2.49	85.6	4585	1.6	5.7
E-glass	2.54	72.5	3445	5.4	4.88
boron	2.6	400	3600	4.5	0.8
steel cold worked	7.87	200	365	12.2	20
steel – quenched and tempered	7.85	212	1595	12.3	12
aluminium (6061-T6 alloy)	2.7	68.2	290	22.9	10
titanium	4.43	110	1103	8.6	8
wood (hickory)	0.72	14.59	4.7	3.1-4.5	n/a

NEWS FROM BMFA FF TECH COMMITTEE

1. Mike Woodhouse-Fellow

The committee were pleased to note that Mike Woodhouse was elected to Fellow of the SMAE at the BMFA AGM. This is a well deserved award for someone who has done so much to promote the interests of F/F over many years.

From this time onward, he is allowed to look pleased with himself at all times!

2. FFTC for 2003

The new committee for 2003 is :-

Mike Woodhouse (SMAE Fellow)	Chairman
Chris Strachan	Secretary
John Carter	Treasurer
Kris Best	Safety
Peter Tribe	PRO
Dave Clarkson	Council Delegate
Stephen Philpott	FIE representative
Stuart Lodge	Space Rockets representative

Correspondence should be addressed to Chris Strachan, 56 Way Lane, Waterbeach, Cambridge, CB5 9NQ. Email chris.strachan@btinternet.com.

The FFTC wish everyone calm weather, a bit of sunshine and moderately large thermals for 2003.

3. Contest Calendar

Many of you will have noted that the Events Calendar in the latest issue of BMFA News unfortunately did not include the BMFA FF events.

However, the events are essentially as the previously published drafts, and can be viewed on the FFTC web page or be email request to Peter Tribe, peter.tribe@virgin.net. Alternatively, a hard copy can be obtained from Peter Tribe on 01225 862748.

4. Wymeswold

As previously reported, the BMFA Winter Open event is to be held at Wymeswold on 16th February.

Wymeswold is an ex WW2 airfield with hard runways and peri-track still in place. It is privately owned and the Winter Open on February 16 and potential further use have been negotiated with the owner (not with a tenant). We must be on our best behaviour (as ever) and obey any local limits to our operations – although so far they are very few.

The main runway is in quite good condition, the cross runways a bit rougher but all are fine for bicycles. The peri-track is in good condition and fine for cars and for positioning control. No motorised retrieving or cars driving down the runways. About one third of the area is arable crops, the rest is grass set-aside. There are no restrictions to retrieving over these areas other than the use of good sense. There are some belts of trees off the edge of the field but they look avoidable.

There is one small industrial estate in a corner of the field and a couple of old hangers, but no barrack area. In summary it is a bit like Luffenham but without the barracks, golf, old military equipment or Rutland Water.

The airfield is used for various motor sport during the week (the Ferrari experience, rally training, go-carts etc.) but, we believe, has not been able to get planning permission for weekends due to noise concerns from the local villages. The lesson for us is obvious. No extensive ground running of engines and careful positioning of control.

Site Entry: please use the only approved access through Prestwold Hall

The airfield is 5 miles East-North-East of Loughborough at Prestwold. From M1 Junction 23 go through Loughborough and then take the A60 to Nottingham. After about 4 miles turn right in Hoton then in about 1 mile at a left hand bend turn left into Prestwold Hall then follow the signs. Approaching from the East get onto the B676 through Burton on the Wolds. 1 mile beyond Burton at a T junction turn right. Straight on in $\frac{3}{4}$ of a mile and the entrance to Prestwold Hall is a further $\frac{3}{4}$ of a mile on the right.

Martin Sibson is the site liason man, Ian Davitt is CD on Feb 16 and Chris Strachan is FFTC contact. Any queries please ring Chris on 01223 860498.

5. Contest Directors

Contest Directors are required for some of the events on the BMFA calendar. At the time of writing, CD's are required for the Summer Mini, the Nationals (we hope), and all three of the Team Selection events.

Please offer your services via Chris Strachan, and if you are unable to do so for some reason, please volunteer a friend, and especially so for the Team Selections events. Finding CD's for these are always difficult and help is necessary from Open Fliers.

6. GBR Team Managers.

Martin Dilly has been appointed as Team Manager (Organisation) and Chris Edge has been appointed Team Manager (Flight Line) for the 2003 championships.

These appointments have been extended to include up to 31st Dec 2003 to give continuity for the initial planning for the 2004 championships.

SALISBURY PLAIN FOR ALL

From Martin Dilly: We have finalised the dates for training and practice weekends for 2003 on Area 8 on Salisbury Plain, with Area 20 available as a reserve. The dates are available for trimming and practice by BMFA members flying FAI or Open free-flight classes, and the site is the only one in the country big enough to allow a model to glide to the ground, rather than having to D/T it to avoid some hazard. The aim of the sessions is to improve overall free-flight standards in the UK.

For those unfamiliar with the site there are a few simple rules to follow, and a single per capita charge to meet the annual licence cost that we must pay.

If you want to use Salisbury Plain in 2003 send an SAE to Bernard Aslett, 25, Honeyhill, Wooton Bassett, Swindon, Wilts, SN4 7D; in return you will receive a sketchmap showing where we fly on Training Areas 8 and 20, a request for the one-

off fee, which will allow you sixteen weekends at one of the best free-flight venues in Britain, and two copies of the users' guide; sign one copy, return it to Bernard, and your name will be included on the Army's security list (unless you're already on it). This information is being provided before the per capita fee for 2003 has been decided, to give you the opportunity to fly on the first available weekend.

The following dates have been agreed: March 29-30; April 12-13; April 26-27; May 3-4; May 10-11; May 17-18; May 31-June 1; June 7-8; July 19-20; July 26-27; Aug. 2-3; Aug. 9-10; Aug. 16-17; Aug. 23-24; Aug. 30-31; Sept. 6-7

Because of possible short-notice military use, you must call Bernard Aslett on 01793-840629 on the Friday before you plan to fly.

CORRESPONDENCE

From Dave Hipperson on EOP and the timing of motor runs.

I have serious misgivings over the current rules for Electric Open Power in fact I have had them since the classes inception and made it clear at the time. They have a serious flaw and that flaw is to do with how the run is timed. The current BMFA wording is:-

Motor run 30 secs. The flyer must be prepared to demonstrate his method of meeting the motor run requirement to the satisfaction of the CD.

This seems to have simplified itself down to showing the timekeeper these things which is fair enough but the rules still only ask for him to show his *method of limiting* not whether it actually limits! However that is only a side issue for the moment because we now have a couple of interesting examples from flying experience to underline perfectly my concerns.

At the NANews do reported elsewhere Dennis Davitt had a timer failure on his EOP and the motor ran for many minutes. It was calm enough for his timekeeper to see that the model was still climbing positively under power for a good while after the statutory 30 secs but they weren't actually timing the run they had done that on the ground in advance. He was given an over run none the less. How come? There is no requirement for the timekeeper to time the run in the air - but here he is doing so. So which is it? On the ground in advance or in the air or both or neither?

Coincidentally Trevor Grey had recounted to me a story that same day of an incident he had experienced the week before when he had been out trimming his EOP on Ashdown Forest. He had set a short DT slightly longer than the motor run and when it didn't pop he realised the DT had failed or so he thought. Worse still he could see the model was in good air as it was gaining height on the glide. He jumped in his car and drove off downwind to keep up with a model that he believed to be booming away in lift on the glide without DT. As it happened he lost the signal much sooner than he would have expected and found the model behind him having gone nowhere near as far as he had expected. When he examined it he discovered that the DT hadn't failed as such, the timer - just like Dennis's - had not started. Hence the 'booming away in lift' part of Trevor's flight that he presumed was glide was in fact cruise power on - in effect an over run but it was too high and too far down wind for that to be obvious to him or presumably if he had had one and it had been a contest flight - his timekeeper! Whereas Dennis was given an over-run we have to assume that Trevor would not have been!

I must stress that there is no suggestion of impropriety here just that these two virtually identical situations would have been handled in completely different ways. Such clear examples that we have the rules here very woolly indeed just as I had feared.

Of course while the EOPs battle it out amongst themselves then their rules and potential impracticabilities are of little immediate concern to me (I didn't build one for that very reason) apart from my natural interest in creating fair and workable rules generally. However if it is going to become the norm. for clubs and gala organisers to combine FOP with IC power (thank heavens the BMFA kicked out the idea) then I think they need to give it some thought. Are we timing the run or not? And if not then possibly IC engined model should be allowed the same dispensation of being able to show the mark on the timer prior to release and not time the run. Currently they are a distinct disadvantage of having to re-fly if they are so much as 0.1 sec over yet it would seem parameters for Electric are shall we say 'wider!' Some discussion needed I think.

WOODBURY GALA

May Bank Holiday Weekend 3-4th May 2003

Once again this year Bristol & West MAC invite you to compete in our Woodbury Weekend Gala events. Caravan accommodation and camping facilities will be available at Castle Brake Holiday Park which is adjacent to the flying site, or if you prefer, a short drive away is Sandy Bay Holiday Park Exmouth.

Castle Brake Holiday Park	Tel: 01395 232431
Sandy Bay	Tel: 01305 776504

Castle Brake provides excellent facilities for accompanying families. The social activities of the weekend are centred in the Castle Brake club room in the evenings, and are noted for serving very good bar meals. There is a childrens playground, games room and a warm welcome from the proprietors Tony & Dare. Such is the popularity of the park that many fliers extend their stay either side of the two days set aside for our contest program. At Sandy Bay Exmouth there are mobile homes for hire, a shop, swimming pool, clubs and many entertainments.

Woodbury is in the midst of a very popular holiday area which offers many family attractions within easy reach. Very close are Bicton Gardens and the beautiful East Devon Coast itself with resorts such as Exmouth, Sidmouth and Budleigh Salterton virtually on the doorstep. Exeter with its Cathedral and excellent modern shopping centre also has much to offer.

Contest officials are Rex Woodruffe (tel 01242 862963), George Fuller (tel 01404 841609), and Fred Chilton

Presentation of prizes for Saturdays and Sundays events will be held on the Sunday evening together with the ever popular raffle A pre-paid supper is available to those requiring it.

Entry fees for all events will be £3 each. Only one entry per person per contest (i.e. no re-entry). Maximum decided on the day according to conditions. 411 comps flown to BMFA rules except Vintage Precision to South Bristol rules and Vintage Glider using 50 metre towline.

Flying Programme - Saturday.

10.50: Competitors and timekeepers briefing at control.

11.00: Start of competition.

Nostalgia (Classic) Events

Open Glider (50 metre towline)	Woodbury Cup
Open Rubber (no motor heaters)	Open Rubber Cup
Open Power (any engine, 12 sec. engine run, no folding prop. brakes etc.)	Needham Duration Cup.
All-in-Mini Vintage	Delta Models Shield
Vintage Precision (South Bristol Rules)	

17.00: Contest finish.

17.15: Fly-offs.

Flying Programme - Sunday.

10.00: Start of competition

Open & Vintage Events

Open Glider	Ray Inker Cup
Open Rubber	Freshman Cup
Combined Open/Slow Power	Challenge Cup
Vintage Glider (50 metre towline)	Mini Vintage Cup
Vintage Rubber	Duration Cup
Vintage Power	W J Harris Memorial Cup

17.00: Contest Finish.

17.15: Fly-offs.

Alan Parker Gala Championship Cup — points awarded from all events 9-6-4 -3-2-1.

Prize giving at Castle Brake club room 21.00 followed by the legendary, outstanding not to be missed raffle.

UK COMPETITION NEWS

CHURCH FENTON DATES. Dennis Davitt has sent the following information on events at Church Fenton:

Jan 12	All-in power, O/G, VG, classic G, Combined P30+CdH. All 3 flights. CD A Kelly, 0113 2539944
Jan 26	details below
Feb 2	Vintage and Pannett. CD to be decided.
March 2	1st Area meeting
March 16	2nd Area meeting
March 23	Northern Gala. CD to be decided
April 6	3rd Area meeting

For any queries, contact Dennis Davitt on 0113 2675433.

CHURCH FENTON 26th January. To expand on the above with full details of the event on Jan 26:

Event are:

Combined Glider, line length:

Modern 50m, Classic 75m, Vintage 100m

Combined-Power: To Timperley 2003 rules with motor runs:

models with bunt 5sec, models with VIT/AR 7sec,
models with fixed surfaces - glow 10sec, diesel 12sec,
classic models 12sec, vintage 15sec, EOP 30sec

Combined-Rubber; factors to be applied to the flight time:

Flight-Cup and up to 25in span	x 1.8,
P30 and CdH	x 1.2
Models 25-34in span	x 1.1
Vintage above 34in span and F1B	x 1.0
Open rubber	x 0.6

For rubber only: any combination of models may be used.

Proxy flying allowed with models declared before the first flight. 0930 start. 2 or 3 flights and max to be decided on the day. CD: G.Ferer 0161.928.4955, and D.Clarkson.

FFn INDEX 2002

Not listed here are Competition News and News from BMFA Tech Committee. Location shown as page/month

MODEL DRAWINGS

F1A		A Rink	54/5	F1J		V Strukov	110/9
F1A	Short Bunt	I Yablonovsky	3/1	F1L	Cargolifter Loafer	L Barr	132/11
F1D	2001	P Kuttler	41/4		Catapult Gliders	A Crisp	60/6
F1E	ATF-20 Kurczak	A Tschanz	29/3	P30		V Morgan	82/7
F1J	Stumpi	M Sondhauss	17/2		Tailless Glider Bambino 2	H Jenne	50/5

ARTICLES AND NOTES

Aerofoil sections	2/1
Biggles Leagues 2001	24/2
Biggles Leagues 2002	24/2, 86/7,126/10
BMFA	
Airfield research	82/7,103/8,129/10
Contest Calendar 2003	103/8
FFTC safety bulletin	24/2
Indoor	25/3
Nationals 2002	57/5
Team selection points	62/6
Cargolifter	32/3
Church Fenton	58/5, 70/6
Chobham Common tree chop	143/11
CIAM	
Bureau meeting	148/12
Championships news	148/12
New rules for 2002	16/2
News	33/3
Plenary meeting	38/4
Sporting Calendar 2003	149/12
Correspondence	
Aslett	98/8
Barker	97/8
Beaumont	141/11
Crisp	101/8
Dilly	84/7
Hipperson	98/8
Kilpelainen	141/11
Lumsden	55/5
Michel	159/12
Taylor	141/11
Thomson	159/12
Tribe	99/8
Peter Williams	98/8
Coupe Championship 2002	24/2,104/8,127/10, 155/12
Cruise model – F1E control, Salzer	20/2
Euro Championships F1A,B,C, Hungary	
British teams	72/7
news	30/3
report and results	88/8, 113/9
UK supporters	24/2, 35/3
F1A World Champion	2/1
Ferry tickets	55/5
FFn	2/1, 22/2, 95/8, 132/11, 148/12
Index 2001	14/1
subscription renewal	146/11
Free Flight Forum	
2002 Forum	104/8,129/10,160/12
call for papers	64/6
report published	69/6
Glider DT problems	141/11, 159/12
Heat related illnesses	6/1
Indoor flying at Cardington	69/6
Indoor records	2/1,33/3,113/9,127/10,162/12
Indoor World Champs,Romania,Oct 7-12	
report	152/12
results	134/11
Internet weather sites: Gregorie	114/9
Sculthorpe, Dilly	55/5
Invigorator tape	85/7
Junior World Champs, Slovakia	106/9
KSB timers wanted	161/12

Leagues 2002, Hipperson	
11/1, 57/5,112/9, 125/10, 157/12	
NFFS Top modelers ballot	96/8
NFFS Sympo call for papers	142/11
John O'Donnell	130/10
Obituary	
Vilim Kmoch	142/11
Keith Proctor	84/7
Postal competitions:	
4th VFFS Coupe	12/1
10th Worldwide,Moseley	43/4
11th Worldwide,Moseley	45/4
Cloud Tramp	138/11
Hermann Jenne Tailless	33/3
Prima 2002	104/8
Rubber, FAI Model Supply	132/11
Rubber, why strands, Hipperson	139/11
Salisbury Plain, trimming sessions	25/2, 35/3
Start of ½A power	58/5
Top Seven, Hipperson	116/10, 157/12
Wakefield, 30g – some thoughts	4/1
Wing warps in F1B, Woodhouse	161/12
World Champs 2003, Hungary	
Argentine team	112/9
British plans	142/11
World Cup	
2003 events summary	149/12
Final F1A, F1B, F1C	143/11
“ correction	162/12
Final F1E	162/12
Interim positions	85/7,129/10

ITEMS FOR SALE

Balsa for indoor models, Maxwell	86/7
Cyclone Engines	161/12
Flying North	26/2, 35/3
NFFS Symposium Report 2002	157/12
PCB tape, Woodhouse	113/9
Strukov props, Bailey	104/8, 161/12
Tech-flight Supplies	113/9

CONTEST RESULTS

chronological order	
Middle Wallop, Dec 2	8/1
Christmas Flyer, Church Fenton, Dec 9	9/1
CdH International, Ch Fenton, Dec 29	10/1
Morley winter, Ch Fenton, Jan 13	21/2
Timperley Winter, Ch Fenton, Jan 27	30/3
Crookham Gala, Middle Wallop, Feb 3	31/3
Isaacson Classic, Lost Hills,USA, Feb 9	28/3
Vint-Pannett-Kay,Church Fenton, Feb10	31/2
Max Men, Lost Hills, USA, Feb 15	28/3
BMFA Winter Open, N.Luff'm, Feb 17	32/3
Bear Cup, Pori, Finland, March 2	40/4
BMFA 1st Area event, March 3	42/4
London Gala, Middle Wallop, March 10	42/4
Holiday on Ice, Norway, March 16	40/4
BMFA 2nd Area event, March 17	51/5
Kotuku Cup, Omarama, NZ, Mar 18	48/5
Omarama Cup, Omarama, NZ, Mar22	48/5
Matfors VT, Osterlo, Sweden, Mar 23	48/5
Northern Gala, Church Fenton, Mar 24	48/5
AFFS Champs, Australia, Mar 29-Apr 1	48/5

BMFA Easter events, Sculthorpe	
Open, March 30	50/5
FAI, March 31	51/5
Middle Wallop Easter, Mar 31-Apr 1	52/5
Southern Cross, Australia, Apr 2-4	48/5
BMFA 3rd Area event, April 14	52/5
Odiham Spring meet, Apr 21	53/5,69/6,80/7
BMFA Team Sel, Sculthorpe, Apr 21	62/6
F1E Rana, Czech Rep, April 26-27	60/6
Baltic Cup, Lithuania, Apr 27-28	60/6
Morley Classic P,Church Fenton, Apr 28	66/6
Woodbury Weekend, May 4 & 6	66/6
Scottish events, May 5-6	68/6
Srem Cup, Yugoslavia, May 11	60/6
BMFA Team Sel, Sculthorpe, May 18	64/6
Argentina Nationals, Embalse, May 22	75/7
Novohrad Cup, Slovakia, June 1	75/7
BMFA Nationals,Barkston, June 1-3	75/7
Von Hafe Cup, Portugal, June 7-8	75/7
BMFA 4th Area event, June 9	78/7
F1E Romania, June13-15	119/10
Brand Cup, Macedonia, June 15-16	75/7
BMFA 2nd Team Sel, Barkston, Jun 15	79/7
Oxford Rally, Port Meadow, June 22	79/7
Scottish Nationals, June 29-30	108/9
Verbitsky Cup, Ukraine, July 5-7	95/8
Antonov Cup, Ukraine, July 12-14	95/8
BMFA Summer Gala,Ch.Fenton,Jul 13	109/9
Huron Cup, Canada, July 13-14	108/9
Scania Cup, Sweden, July 19-21	119/10
Nordic Cup of Denmark,Sweden,Jul 22	108/9
Morley Heath, Church Fenton, July 27	111/9
Pusztta Cup, Hungary, July 27-28	91/8
Honnington Mini, July 28	112/9
Voros Jeno, Hungary, Aug 4-5	119/10
Poitou, France, August 23-25	120/10
F1E Kärneralm, Austria, Aug 13	119/10
Cardington Indoor Nats, Aug 24	127/10
Timperley, N.Luffenham, Aug 24	123/10
Cleemac/Knavesmire, Church Fenton, Aug 26	124/10
Eifel Pokal, Germany, Aug 29	121/10
Israel FF Champs, Aug 30-31	121/10
Canada Cup, USA, Aug 31	121/10
BMFA 5th Area event, Sept 1	117/10
BMFA Southern Gala, L.Rissington, Sept 6	125/10
Scottish events, Newbigging, Sept7	137/11
Aviaprom Cup, Russia, Sept 9	122/10
Stonehenge Cup, Sept 14-15	122/10
CargoLifter, Germany, Sept 14-15	127/10
Mikulas Cup H, Slovakia, Sept 17	119/10
E/Champs F1E, Slovakia, Sept 17-22	118/10
Liptov Cup, Slovakia, Sept 21	119/10
Castilla La Mancha, Spain, Sept 21	123/10
Brumfly, North.Luffenham, Sept 22	126/10,138/11
F1E Poland, Sept 27-28	136/11
BMFA Team Sel, Salisbury, Sept 28	130/10
BMFA 6th Area event, Oct 6	137/11
Sierra Cup, USA, Oct 11-12	136/11
Krka Cup, Slovenia, Oct 11-13	137/11
F1E Germany, Oct 18-19	136/11
Croydon Wakefield Day, Middle Wallop, Oct 20	153/12
Falcons Gala, Church Fenton, Nov 3	154/12
Ripmax CdH, N.Luffnham, Nov 10	154/12
Barnes Pw day,Church.Fenton,Nov17	155/12

