Free Flight news FFn

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DIARY

December 9 Church Fenton	Morley/NA Christmas Flyer. O/R, O/G, comb P (O/P+SLOP+OE), vintage, P30, comb E30+CO2. See UK Competition News this issue. Contact D Davitt 0113 2675433. Names must be on security list, contact J Northrop 0113 2581292. Check day before meeting either with contacts or web site http://members.aol.com/morleyff
December 29 Saturday Church Fenton	Coupe International 2001. 80g, 100g and vintage Coupe. See FFn 0109 and this issue. Contact D Davitt 0113 2675433. Names must be on security list, contact J Northrop 0113 2581292.
February 15-17 Lost Hills, CA, USA	Maxmen International. World Cup event. F1A, F1B, F1C, F1G, F1H, F1J. Entry fee $20. Contact: George Batiuk, 1759 Southwood Drive, San Luis Obispo, CA 93401 4031, USA, tel +1 805 574 8231, fax +1 805 543 1135
February 17 North Luffenham	BMFA Winter Open. O/P (Frog Senior), O/R, O/G, SLOP, EOP, Vintage
February 24 Near Sheffield	BMFA F1E Team Selection for 2002 Team
March 2 Pori, Finland	Bear Cup World Cup F1A, F1B, F1C. Entry fee FIN 150. Contact: Kari Lindgren, Muenamiehentie 5, 28610 Pori, Finland, tel: +358 2 63 77 860, e: pipo.lindgren@kolumbus.fi
March 3 Area venues	BMFA First Area event. O/R (Gamage), F1C (Halifax / Plugge), F1H, Tailless
March 10 Crivelle, TO, Italy	Trofeo AGO. F1K.Entry fee US$20. Contact: Sandro Schirru, Via C.B. Cavour no 5, 10095 Grugliasco, Italy, tel: +39 011 78 017 88, fax: +39 011 95 90 519
March 10 Near Sheffield	BMFA F1E Team Selection for 2002 Team
March 16-17 Gjovik, Norway	Holiday on Ice World Cup. F1A, F1B, F1C. Entry fee NOK 200. Contact: Tor Bortne, Jernbanev. 28, 2840 Reinsvoll, Norway, tel: +47 611 96 736, fax: +47 611 52 606, e: margit.bortne@c2i.net
March 17 Area venues	BMFA Second Area event. O/G, F1B (Weston / Plugge), F1J / BMFA½A HLG, Catapult Glider

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Compiled and produced by Ian Kaynes, Paul Masterman and Michael Warren

FFN

A reminder that an FFn subscription renewal form was included with the November issue. If your subscription runs out at the end of 2001 and you have not yet returned it, then please send the form and payment now to ensure that your January issue reaches you on time. The subscription costs are £15 UK, £17 Europe and £21 or $36 for countries outside Europe. The NFFS 2001 Symposium report is now available (see later in this issue) and you can combine your order with your FFn subscription renewal.

BMFA FREE FLIGHT FORUM 2001

The 2001 Forum was held at the Coventry Holiday Inn on November 25th. Just to confuse you, when the proceedings are published it will carry the label "Free Flight Forum 2002"….

The attendance appeared to be slightly lower this year, perhaps missing a few more distant people who might have combined attending the Forum with the BMFA presentation dinner the previous evening (sparse FF trophies this year). A notable presentation took place during the Forum when the new BMFA chairman presented certificates to John Cuthbert and Peter Watson for their first and third places in the 2001 F1C World Cup.

The day opened with Phil Ball talking about catapult gliders, which he described as the best fun for the minimum effort. Phil showed his models and there was much interested discussion of trim, glide quality, folders and the rubber motive power.

Chris Strachan spoke about "Free Flight diversity - strength or weakness?" suggesting that FF is an endangered species with no trade support (RC dominated) and too many classes to fly.

John Godden talked about electric, mainly the open electric class. The choice of batteries and hence size of motor and model was explained and John used his F1B size model as an example. However, discussion showed that while there was considerable interest only three or four flew in the few open electric comps.

Mike Evatt, the chairman of the Forum, described the use of computers in free flight. This included a demonstration of sticking a transparency with model plan printed on it on to a building board for easy accurate positioning of cap strips/ribs.

Michael Woodhouse discussed the likely way ahead for F1B with the introduction of the 30g motor next month. He noted the new rubber prices giving the £1 motor, as well as variability of quality.

After lunch Dave Clarkson was first on with a review of slow open power developments since the 1997 FF Forum. Changes Dave had made included more camber and smaller tails, leading to improved climb and glide.

John Godden spoke about contests in restricted areas, prime ideas being short glider lines, limited rubber and restricted power on the lines of British Power. However, there was good news at the end that on December 9th the event at Church Fenton will be unlimited.

Bob Bailey then described the effects of the new rules for F1D. Typical UK layout has unbraced wings and a tailplane with tip dihedral. A major problem is getting the CG far enough back with all heavy parts concentrated at the front. The models must withstand higher torque because the limited weight motors must be wound to the limit. The models are easier to build and fly, but rather more difficult to trim for optimum performance. Because they are more robust, they can be used in more sites. Former F1D flyers have been attracted back - in the UK the number of active F1D flyers has doubled. In the USA it has provided a feasible route into competition for youngsters interested via the Science Olympiad programme in schools.

Next John Barker talked about folding propellers The geometry of skew hinges was developed and demonstrated using a conical light shade to show the blade path and alignment.

The Forum concluded with two descriptions of variable pitch props for F1G, with examples of both passed round. John Bailey described his development of a modern-technology Coupe during the last 5 years. The challenge is to make a prop within the 20mm diameter and down to 16g weight. Mike Evatt noted that the first VP prop he had seen was a prop by Ted Evans with both variable pitch and diameter (15" to 19"). He described the major F1B VP props from Hofsass to Andrjukov and then his own Coupe unit.

CIAM BUREAU MEETING

The CIAM Bureau meeting was held in the Olympic Museum at Lausanne, Switzerland, on November 29 and 30. The main items of note for free flight were the contest calendar for next year and details of championships, all reported below together with a few items of news.

FAI Membership. The FAI General Conference has approved a plan to change the FAI fee structure (the fees paid by the National Aero Clubs to pay for the FAI office and services). This will be on a basis of numbers of "Air Sport Persons", a concept yet to be defined in detail but with the strong potential to have an adverse effect on aeromodelling interests because we have so many people. Graham Lynn (BMFA) has been invited to join a working group looking into the definition of numbers of air sport persons, but separate from another working group defining the pricing structure. Graham discussed this with the Bureau and agreed to join the working group to represent aeromodelling, at the same observing that the starting point was on a poor basis and charges should be related more directly to the FAI costs incurred for different sports.

Presentation of trophies. The meeting discussed the problem in Lost Hills that Slovakia and Bosnia did not send the trophies which they had won at the previous Champs. This removed some significant hardware from the awards ceremony. In future that the trophies must be returned to the CIAM Plenary meeting in March in the year of the Championships so that they can then be taken back by the delegate from the host country.

A one-off problem at Lost Hills was that neither the FAI medals nor diploma were presented at the ceremony. It

has now been heard that this was even more surprising because the FAI awards were actually there at Bakersfield!

Proposals. The Bureau meeting reviews proposals submitted for the agenda of the March 2002 Plenary meeting. The only two FF proposals accepted are:

FRANCE proposes a clarification of the F1A pennant rule, to augment the existing rule specifying minimum a read 2.5 dm^2 by specifying it must have a rectangular shape with the smaller dimension at least 5cm.

FRANCE proposes the addition of F1A Junior and F1E Junior classes to the Free Flight World Cup. This would involve a change of wording in FF World Cup rules paragraphs 1, 2 and 4, the latter paragraph defining bonus points of one per 5 competitors, based on the number of junior competitors.

The two proposals above will be voted on at the CIAM Plenary meeting in March 2002.

There were some proposals for changes in F1A, F1B, F1C but these were not accepted for the 2002 Plenary meeting. This is because the rule-freeze requirements state that rule changes can only be decided in 2005 for application with the next new Sporting Code coming into effect in January 2006. Instead the proposals were referred directly to the CIAM FF Subcommittee. These were:

Proposals from Israel to add "the model becomes clearly illegal" to the F1A, F1B, F1C definitions of unsuccessful attempts.

USA propose to change the F1B flyoff definition to state that "Competitors may wind their models in advance of the start of the 10 minute round".

By contrast, Israel propose to change the F1B launching definition to specify that "Each competitor must wind his motor during the round and launch his model himself."

France proposes to ban geared motors in F1C.

To repeat, the four items above will not be on the Plenary meeting agenda but will be considered by the subcommittee with a view to forming advance policy for future rule changes.

In addition some proposals (from Austria on F1K and Sweden on World Cup juries) are likely to be rejected for not being correctly submitted - sent by fax only and not in electronic form.

CHAMPIONSHIPS NEWS

Junior World Championships F1A F1B F1J will be in August at Lucenc, Slovakia, which was the site of the 1992 Junior champs. The schedule is:

Monday	Aug 12	Arrival and registration
Tuesday	Aug 13	Practice, opening ceremony
Wednesday	Aug 14	F1A competition
Thursday	Aug 15	F1B competition
Friday	Aug 16	F1J competition
Saturday	Aug 17	Reserve day, closing ceremony
Sunday	Aug 18	Departure

The entry fee will be CHF330 for competitors and team managers, CHF65 for supporters. Board and lodging for the 6 days will cost CHF390 with accommodation in double rooms, banquet CHF40 for juniors, CHF50 for seniors.

Indoor Senior and Junior World Championships F1D will be held in the Slanic saltmine, Romania, during October. In presenting the details Marius Connu noted that this may be the last championships at Slanic in view of the alternative attraction of the Cargolifter site. The schedule is:

Monday	Oct 7	Arrival and registration
Tuesday	Oct 8	Practice, opening ceremony
Wednesday	Oct 9	Rounds 1 and 2
Thursday	Oct 10	Rounds 3 and 4
Friday	Oct 11	Rounds 5 and 6, closing ceremony
Saturday	Oct 12	Departure

The entry fees are CHF495 for seniors and team managers, CHF420 for junior competitors, CHF100 for supporters. Board and lodging in the hotel in Slanic will cost CHF70 per day and the banquet charge will be CHF55 for seniors, CHF for juniors.

European Championships F1A, F1B, F1C will be in Hungary at Kunszentmiklos. This is in the same geographic area as the familiar Domsod site. It is flat, grass covered area of 4x6 km. The schedule is:

Monday	July 29	Arrival and registration
Tuesday	July 30	Model checking, practice, opening ceremony
Wednesday	July 31	F1A contest
Thursday	Aug 1	F1B contest
Friday	Aug 2	F1J contest
Saturday	Aug 3	Reserve day, sightseeing, prize giving and banquet
Sunday	Aug 4	Departure

There will be World Cup events on the same site just before and after the championships. The costs are to be reviewed following the Bureau meeting , the quoted entry fees are €250 Euro for competitors, €200 for team managers, €50 for supporters. Banquet will cost €40. Accommodation will be booked by competitor direct, with details to be provided in bulletin 1, and food purchased locally (lunch or dinner estimated to cost €8 to 10). The average cost of hotels is quoted as €40 per night. Camping will be also be available on a site near the field.

European Senior and Junior Championships F1E will be held in Slovakia during September. The timetable is:

Tuesday	Sept 17	Arrival and registration
Wednesday	Sept 18	Model registration, practice, opening ceremony
Thursday	Sept 19	Championships flights
Friday	Sept 20	Championships reserve day, sightseeing, night swimming
Saturday	Sept 21	World Cup competition flights
Sunday	Sept 22	World Cup reserve day, departure

The location is in the Low Tatras 12km from Liptovsky Mikulas, Slovakia. Entry fee for the Championships will be CHF215 for senior competitors and team managers,

CHF100 for junior competitors, CHF35 for supporters. World Cup entry will be CHF25. Full board accommodation cost will be CHF170 for five nights, plus CHF30 for the banquet fee.

WORLD CUP EVENTS SUMMARY

The following is a quick-reference list of the 2002 World Cup events extracted from the full FAI Calendar. For details of the events see the full calendar listing.

World Cup F1A F1B F1C

Feb 15-17	Lost Hills	USA	Maxmen
Mar 2	Pori	FIN	Bear Cup
Mar 16-17	Gjovik	NOR	Holiday on Ice
Mar 18-20	Omarama	NZL	Kotuku Cup
Mar 22-24	Omarama	NZL	Omarama Cup
Mar 23	Österlo	SWE	Matfors VT
Mar 29+	Narranderra	AUS	AFFS Champs
Apr 2-4	Narranderra	AUS	Southern Cross
Apr 27-28	Madziunai	LTU	Baltic Cup
May 11	Vojka	YUG	Srem Cup
May 22-25	Embalse	ARG	Argentina Nationals
May 24-26	Vsechov	CZE	Jihocesky Pohar
Jun 7-9	Evora	POR	Von Hafe Cup
Jun 8	Lucenec	SVK	Novohrad Cup
Jun 15-16	Prilep	MKD	Prilep Brand Cup
Jul 5-7	Kharkiv	UKR	Verbitsky Cup
Jul 12-14	Kiev	UKR	Antonov Cup
Jul 13-14	Toronto	CAN	Huron Cup
Jul 19-21	Rinkaby	SWE	Scania Cup
Jul 22	Rinkaby	SWE	Nordic Cup Denmark
Jul 27-28	Kunszentmiklós	HUN	Puszta Cup
Aug 4-5	Kunszentmiklós	HUN	Vörös Jenõ
Aug 23-25	Thouars	FRA	Poitou
Aug 29+	Zulpich	GER	Eifel – Pokal
Aug 30-31	Beer Sheva	ISR	FF Champs
Sep 9-10	Orel	RUS	Cup of Aviaprom
Sep 14-15	Sculthorpe	GBR	Stonehenge Cup
Sep 21-22	Ocana-Toledo	ESP	Castilla - La Mancha
Sep 28	Zrenjanin	YUG	Djordje Zigic
Sep 28-29	Toronto	CAN	Canada Cup
Oct 11-12	Sacramento	USA	Sierra Cup
Oct 11-13	Novo Mesto	SLO	Krka Cup

F1E

Apr 26	Rana nr Louny	CZE	International
Apr 27	Rana nr Louny	CZE	International
Jun 13-14	Turda	ROM	Turda Cup
Jun 14-15	Turda	ROM	Napoca Cup
Aug 13	Karneralm	AUS	Heri-Kargl-Cup
Aug 17	Karneralm	AUS	Weltcup
Sep 17	Liptov.Mikulas	SVK	Mikulas Cup Hungary
Sep 21	Liptov.Mikulas	SVK	Liptov Cup
Sep 27	Lubomia	POL	International
Sep 28	Lubomia	POL	International
Oct 11-12	Oberkotzau	GER	Föhrlberg Cup
Oct 12-13	Oberkotzau	GER	Oberkotzau

FAI COMPETITION CALENDAR 2002

February 15-17 Lost Hills, CA, USA	Maxmen International. World Cup event. F1A, F1B, F1C, F1G, F1H, F1J. Entry fee $20. Contact: George Batiuk, 1759 Southwood Drive, San Luis Obispo, CA 93401 4031, USA, tel +1 805 574 8231, fax +1 805 543 1135
March 2 Pori, Finland	Bear Cup World Cup F1A, F1B, F1C. Entry fee FIN 150. Contact: Kari Lindgren, Muenamiehentie 5, 28610 Pori, Finland, tel: +358 2 63 77 860, e: pipo.lindgren@kolumbus.fi
March 10 Crivelle, TO, Italy	Trofeo AGO. F1K.Entry fee US$20. Contact: Sandro Schirru, Via C.B. Cavour no 5, 10095 Grugliasco, Italy, tel: +39 011 78 017 88, fax: +39 011 95 90 519
March 16-17 Gjovik, Norway	Holiday on Ice World Cup. F1A, F1B, F1C. Entry fee NOK 200. Contact: Tor Bortne, Jernbanev. 28, 2840 Reinsvoll, Norway, tel: +47 611 96 736, fax: +47 611 52 606, e: margit.bortne@c2i.net
March 18-20 Omarama, New Zealand	Kotuku Cup World Cup. F1A, F1B, F1C. Entry fee NZ$50. Contact: W. Mc Garvey, 63a Ngatiawa St, Auckland 1003, New Zealand, tel: +64 9 636 89 88, e: bill.mcgarvey@xtra.co.nz
March 22-24 Omarama, New Zealand	Omarama Cup World Cup F1A, F1B, F1C. Entry fee NZ$50. Contact: W. McGarvey, 63a Ngatiawa St, Auckland 1003, New Zealand, tel: +64 9 636 89 88, e: bill.mcgarvey@xtra.co.nz
March 23 Österlo, Sweden	Matfors VT International World Cup. F1A, F1B, F1C. Entry fee SEK 250. Contact: Mikael Holmbom, Österlo 140, 86013 Stöde, Sweden, tel: +46 60 21 210, fax: +46 60 21 210
March 29-April 1 Narranderra, NSW, Australia	Australian Free Flight Society Championships World Cup F1A,F1B,F1C. Entry fee AU$30. Contact: Phil Mitchell, PO Box 44, Terrigal, 2260 NSW, Australia, tel:+61 24367 8316,fax:+61 243 84 3217 phil.mitchell@gosford.nsw.gov.au
April 2-4 Narranderra, NSW, Australia	Southern Cross Cup World Cup. F1A,F1B, F1C. Contact: Tahn Stowe, PO Box 138, Winmalee, NSW 2777, Australia, tel: +61 2 47 54 13 34, e: stowes@ozemail.com.au
April 26-27 Rana near Louny, Czech Republic	Two Open International F1E World Cup events, (1) 26th, (2) 27th. Entry fee for each event CHF35 senior, CHF20. Contact: Ivan Horejsi, Nad Prehradou 15, 32102 Plzen, Czech Republic
April 27-28 Madziunai, Lithuania	Baltic Cup World Cup. F1A, F1B, F1C. Entry fee US$ 20. Contact: Rolandas Mackus, Taikos 19 -12, 4910 Utena, Lithuania, tel: +370 87 26 002, fax: + 370 39 69 181
May 11 Vojka, Yugoslavia	19th Srem Cup World Cup. F1A, F1B, F1C. Entry fee DM 50. Contact: Jovanovic Dragomir, St Jovana S. Popovica 11, 22330 Nova Pazova, Yugoslavia, tel: +38 122 333 188, fax: +38 111 62 53 71, e: grubic@net022.co.yu, web: http.//www.sremkup.s5.com
May 22-25 Embalse, Argentina	Argentina National Championships. World Cup event. F1A, F1B, F1C. Entry fee $20. Contact: Daniel Iele, tel/fax +54 1146 653626

May 24-26 Vsechov, Czech Republic	17th Jihocesky Pohar World Cup. F1A, F1B, F1C. Entry fee CHF40 senior, CHF15 junior. Contact: Rostislav Kvasnicka, Svepomoc 694, 391 02 Sezimovo Usti, Czech Republic, tel: +420 608 059 803, e: r.kvasnicka@seznam.cz
May 25-26 Beograd, Yugoslavia	Belgrade Cup F1D. Entry fee US$30. Contact: Vojislav Stojkovic, St. Kralja Petra 70, 11000 Beograd, Yugoslavia, tel: +38 111 18 96 27, fax: +38 111 18 64 43, e: l.s.d.@Eunet.yu
June 7-9 Evora, Portugal	Von Hafe Cup World Cup. F1A, F1B, F1C. Entry fee €30. Contact: Anibal Paiva, rua Marques Leitão 33, Valbom - GDM, 4420 Gondomar, Portugal, tel: +351 96 80 23 273, fax: +351 22 33 93 749
June 8 Lucenec-Bol'kovce, Slovak Republic	Novohrad Cup World Cup. F1A, F1B, F1C. Entry fee DM 50. Contact: Stefan Hubert, Malinovského 5, 98401 Lucenec, Slovak Republic, tel: +421 47 43 28 206
June 13-15 Turda, Romania	2 F1E World cup events. 13-14th Turda Cup, 14-15th Napoca Cup. Entry fee US$35 senior, US$25 junior. Contact: Zanciu Mihail, Str. Parcul Tineretului camera 210, Bucuresti, Sector 4, Romania, tel: +40 1 330 40 40 ext 224, fax: +40 1 330 40 40 ext 224
June 15-16 Prilep, Former Yugoslav Rep. of Macedonia	Prilep Brand Cup. World Cup. F1A, F1B, F1C. Entry fee €20. Contact: Todoroski Zdravko, Kej 4 Juli 1/5, 7500 Prilep, Former Yugoslav Rep. of Macedonia, tel: +359 48 28 693, fax: +359 48 28 693, e: zdravkot@mt.net.mk
June 22-23 Orléans, France	Concours International d'Orléans F1D, F1L, F1M. Entry fee €15 1 model, €8 next model. Contact Jacques Delcroix, 41, Allée du Coudray, 45160 Olivet, France, tel: +33 2 38 63 49 57, fax: +33 2 38 63 49 57
June 28-30 Gliwice, Poland	12th Black Cup. F1G, F1H, F1J, F1K. Entry CHF15. Contact: Stanislaw Kubit, Ul. Rybnicka 84, 44100 Gliwice, Poland, tel: +48 32 232 18 22
June 29-30 Bordeaux, France	3rd Concours International de Bordeaux F1D, F1L, F1M . Entry fee €16 1 model, €8 next model. Contact: Jean-Pierre Darrouzes, 27, avenue Kennedy, 33600 Pessac, France, tel: +33 5 56 36 95 44
July 5-7 Kharkiv, Ukraine	Verbitsky Cup World Cup. F1A, F1B, F1C, F1G, F1H, F1J. Entry fee US$20. Contact: Victor Vishnyakov, Str. Saperna 30, ap 125, 61033 Kharkiv, Ukraine, tel: +380 57 212 0711, fax:+ 380 57 214 7907, e: postmaster@kretov.kharkov.ua
July 12-14 Kiev, Ukraine	Antonov Cup World Cup. F1A, F1B, F1C, F1G, F1H, F1J. Entry fee US$20. Contact: Ukrainian Aeromodelling Club, Str. Industrialna 27, n/c 8, 03056 Kiev, Ukraine, tel: +380 44 457 09 73, fax: +380 44 457 09 73, e: zakharov@cstcam.kiev.ua
July 13-14 Toronto, Canada	Huron Cup. World Cup event. F1A, F1B, F1C. Entry fee Can$25. Contact: J McGlashan, RR2, Group4, 6 Harvest Drive, Niagara on the lake, Ontario L0S 1JO, Canada, tel +1 905468 1829, fax +1 905 468 5098, email rgmeg@cogeco.ca
July 19-21 Rinkaby, Sweden	Scania Cup World Cup. F1A, F1B, F1C. Entry fee SEK 250. Contact: Jan-Erik Andersson, Hjälmgatan 25, 26070 Ljungbyhed, Sweden, tel: +46 435 44 11 88, fax: +46 435 37380
July 22 Rinkaby, Sweden	Nordic Cup of Denmark World Cup. F1A, F1B, F1C. Entry fee SEK 250. Contact: Bo Nyhegn, Birkevaenget 2, Gadevang, 3400 Hillerod, Denmark, tel: +45 48 26 73 06, fax: +45 48 24 10 69
July 27-28 Kunszentmiklós, Hungary	Puszta Cup World Cup. F1A, F1B, F1C. Entry fee CHF 40. Contact: Gyorgy Pinkert, Pf. 16, 1625 Budapest, Hungary, tel: +36 1 221 40 71, fax: +36 1 221 40 71, e: info@cavalloni.hu
July 29- August 3 Kunszentmiklós, Hungary	European Championships F1A, F1B, F1C.
August 4-5 Kunszentmiklós, Hungary	Vörös Jenõ Memorial Contest World Cup. F1A, F1B, F1C. Entry fee CHF40. Contact: Jenõ Vörös, Tárogató str. 63, 6726 Szeged, Hungary, tel: +36 20 9 136 463
August 11-18 Lucenec-Bol'kovce, Slovak Republic	Junior World Championships F1A, F1B, F1J.Contact: Stefan Hubert, Malinovského 5, 98401 Lucenec, Slovak Republic, tel: +421 47 43 28 206
August 13-17 Karneralm, Austria	3 F1E events. Aug 13th: 5th International Heri-Kargl-Cup World Cup, entry fee €28; Aug 15th 31st International Heri-Kargl-Cup, entry fee €20, 17th: 6th Weltcup World Cup, entry fee €28. Contact: Reinhard Wolf, Postfach 5, 3200 Ober - Grafendorf, Austria, tel: + 43 2747 3790, fax: +43 676 301 8300, email: umsc.kolibri@lion.cc, web: http://go.to/umsc-kolibri
August 16-18 Beauvoir-sur-Niort, France	Azay Le Brule. F1A, F1B, F1C, F1G, F1H, F1J, F1K. Entry fee €13. Contact: André Pouyadou, 10, Route de la Forêt, 79260 Romans, France, tel: +33 5 49 25 58 52, fax: +33 5 49 25 58 52
August 23-25 Noizé, Thouars, France	Poitou World Cup. F1A, F1B, F1C, F1G, F1H, F1J, F1K. Entry fee €12 junior, €30 senior. Contact: Alain Roux, Poitou 2002, BP 36, 79101 Thouars Cedex, France,tel:+33 549 666 107, fax: +33 549 961 337, e: poitou-aero@club-internet.fr, web: http://site.voilà.fr/poitouaero
Aug 29-Sept 1 Zulpich, Germany	33rd International Eifel – Pokal World Cup. F1A, F1B, F1C. Entry fee €30. Contact: Peter Mönninghoff, Friedrich - Ebert. Strasse 41, 58332 Schwelm, Germany, tel: +49 233 67 248, e: moenninghoff-Peter@t-online.de
August 30-31 Beer Sheva District, Israel	51st Israel Free Flight Championships World Cup. F1A, F1B, F1C, F1G, F1H, F1J. Entry fee US$35. Contact: Tzlil Meir, 67 Hayarkon St., POB 26261, tel Aviv zip 61263, Israel, tel: +97 23 517 50 38, fax: +97 23 517 72 80, e: office@aeroclub.org.il
Sept 9-10 Orel, Russia	Cup of Aviaprom. World Cup. F1A, F1B, F1C. Entry fee $25. Contact: Nadezda Snegovay, 88-8 Volokolamskoe eh, Moscow, Russia, tel/fax: +7 095 491 9747, e: fas@cnt.ru

Sept 14-15 Fakenham - Norfolk, UK	Stonehenge Cup World Cup F1A,F1B,F1C Entry fee £22. Contact: Gerry LeVey, 10, St Nicholas Crescent, Copmanthorpe, York YO23 3UZ, UK,tel+44 1904 705647
Sept 17 Liptovsky Mikulas, Slovak Republic	Mikulas Cup World Cup F1E. Entry fee CHF 40. Contact: György Pinkert, Pf 16, H - 1625 Budapest, Hungary, tel: +36 1 221 40 71, fax: +36 1 221 40 71, e: info@cavalloni.hu
Sept 17-22 Liptovsky Mikulas, Slovak Republic	European Championships F1E. Contact: Peter Nosko, Nabrezie 1686 úl 0, 031 0L Liptovsky Mikulaas, Slovak Republic, tel: +421 44 55 22 99, fax: +421 44 55 20 64, e: nosko@naex.sk
Sept 21-22 Ocana-Toledo, Spain	12th Open Internacional Castilla - La Mancha World Cup. F1A, F1B, F1C. Contact: Francisco Saez, C/ Albacete no 5, 45800 Ocaña - Toledo, Spain, tel: +34 925 121 205, e: fdacm@ctv.es
Sept 21 Liptovsky Mikulas, Slovak Republic	Liptov Cup World Cup F1E . Entry fee €25. Contact: Peter Nosko, Nabrezie 1686 úl 0, 031 0L Liptovsky Mikulaas, Slovak Republic, tel: +421 44 55 22 99, fax: +421 44 55 20 64, e: nosko@naex.sk
Sept 27 Lubomia, Poland	F1E World Cup. Entry CHF30. Contact: Eugeniusz Cofalik, Ul. Korczaka 11, 44200 Rybnik, Poland, t:+48 3242 26533, fax:+48 3242 26533, gen8@poczta.wp.pl.
Sept 28 Lubomia, Poland	F1E World Cup event. Entry fee CHF30. Contact: Jan Wojtak, Ul. Staszica 23m18, 47400 Racib'orz, Poland, tel: +48 32 415 36 40, e: wojtak@polbox.com
Sept 28 Aradac-Zrenjanin, Yugoslavia	Memorial Djordje Zigic World Cup. F1A,F1B, F1C. Entry fee DM50. Contact: Borovac Nikola, Aeroclub Zemun, Cara Dusana 57, 11080 Zemun, Yugoslavia, tel: +38 123 56 49 28, fax: +38 111 619 164
Sept 28 Kunszentmiklós, Hungary	Árva János Memorial contest. F1A, F1B, F1C. Entry fee CHF 20. Contact: János Árva, Scherer Ferenc Str 7, 5700 Gyula, Hungary, Email: ani@gyulahus-hu
Sept 28-29 Toronto, Canada	Canada Cup. World Cup event. F1A, F1B, F1C. Entry fee Can$25. Contact: Leslie Farkas, 21 Misty Moor Drive, Richmond Hill, Ontario L4C6P9, Canada, tel/fax +1 905 886 3025, email aljolie@netcom.ca
October 7-12 Slanic Prahova, Romania	Indoor World Championships F1D, Seniors and Junior. Contact: Zanciu Mihail, Str. Parcul Tineretului camera 210, Bucuresti, Sector 4, Romania, tel: +40 1 330 40 40 ext 224, fax: +40 1 330 40 40 ext 224, e: frm@radiotel.ro
Oct 11-12 Sacramento, CA, USA	Sierra Cup. World Cup F1A, F1B, F1C, F1G, F1H, F1J. Entry fee $50. Contact: M McKeever, 1252 Mockingbird Str, Hair Oaks, CA 95428, USA, T+1 914 947 8475
Oct 11-13 Novo Mesto, Sent Jernej, Slovenia	Krka Cup World Cup. F1A, F1B, F1C. Entry fee €25. Contact: Damjan Zulic, Nahtigalova 5, 8000 Novo Mesto, Slovenia, tel: +386 41 610 737, fax: +386 7 33 75 701, e: damjan.zulic@insert.si
October 11-13 Oberkotzau, Germany	2 F1E World Cup events. 11-12th: Föhrlberg Cup; 12-13th Oberkotzau. Entry fee €30 1 event or €50 2 events. Contact: Peter Kuttler, Schneebergstrasse 26, 95145 Oberkotzau,Germany, T+49 9286 6187, fax:+49 9286 8427, bkoenig@topmail.de

SIERRA CUP, Sacramento,USA Oct 18-21

F1A 48 flew

1	P de Boer	NED	1260	+300	+397	
2	H Schmidt	GER	1260	+300	+366	
3	C Bachmann	SUI	1260	+300	+335	
4	O Stoev	UKR	1260	+300	+330	
5	J Valo	FIN	1260	+300	+326	
6	E Galor	ISR	1260	+300	+324	
7	V Stamov	UKR	1260	+300	+316	
8	M Koszonozskin	RUS	1260	+300	+299	
9	I Zavgorodny	UKR	1260	+300	+274	
10	V Isaenko	UKR	1260	+300	+266	
11	M Mckeever	USA	1260	+300	+261	
12	M Lihtamo	FIN	1260	+300	+250	
13	A Romi	ISR	1260	+300	+219	
14	S Limor	ISR	1260	+300	+215	
15	R Antonucci	ARG	1260	+300	+194	
16	A Barron	USA	1260	+224		
17	B van Nest	USA	1260	+180		
18	M Cowley	USA	1260	+171		
19	F Aberlenc	FRA	1260	+44		

F1B 44 flew

1	I Kolic	YUG	1260	+300	+420	+518
2	A Andriukov	USA	1260	+300	+420	+455
3	J Fitch	USA	1260	+300	+420	+391
4	A Khrebtov	RUS	1260	+300	+420	+381
5	M Seifert	GER	1260	+300	+420	+378
6	G Batiuk	USA	1260	+300	+420	+374
7	A Burdov	RUS	1260	+300	+420	+371
8	A Rybchenkov	RUS	1260	+300	+420	+368
9	Y Blazhevich	UKR	1260	+300	+420	+356
10	J Isotalo	FIN	1260	+300	+420	+345
11	B Jensen	USA	1260	+300	+420	+330
12	S Tedeschi	FRA	1260	+300	+420	+325
13	A Chelepov	RUS	1260	+300	+399	
14	Y Waltonen	FIN	1260	+300	+394	
15	R Blackam	AUS	1260	+300	+379	
16	D Barberis	FRA	1260	+300	+302	
17	T Bond	AUS	1260	+300	+275	
18	R Khuziev	RUS	1260	+300	+258	
19	J Malkin	NZL	1260	+291		

F1C 24 flew

1	P Watson	GBR	1260	+300	+376	
2	B Gutai	USA	1260	+300	+350	
3	A Babenko	UKR	1260	+300	+349	
4	B Johannes	USA	1260	+300	+348	
5	R Truppe	AUT	1260	+267		
6	R Archer	USA	1260	+242		
7	V Tregubenko	UKR	1260	+237		
8	K Oliver	USA	1260	+234		

F1G 12 flew, 7 in flyoff

1	E Gorban	UKR	600	+240		
2	S Stefanchuk	UKR	600	+165		
3	O Bukin	UKR	600	+149		

F1H 20 flew 8 in flyoff

1	D Zink	USA	600	+240	+234	
2	P Brun	USA	600	+240	+138	
3	M McKeever	USA	600	+234		

F1J 17 flew 9 in flyoff

1	N Poti	USA	600	+240	+540	
2	R Gutai	USA	600	+240	+524	
3	E Carroll	USA	600	+240	+484	

KRKA CUP,Novo Mesto, Slovenia Oct 20-21

F1A 27 flew, 13 in flyoff

1	M Nardin	SLO	1290	+300	+420	+202
2	R Lesko	CRO	1290	+300	+420	+158
3	D Terlep	SLO	1290	+300	+306	
4	V Bolgov	UKR	1290	+300	+287	
5	I Bombek	CRO	1290	+300	+196	
6	T Necemar	SLO	1290	+286		

F1B 9 flew

1	D Zulic	SLO	1290	
2	K Salzer	AUT	1213	
3	N Banjac	CRO	1110	

F1C 3 flew

1	G Zsengeller	HUN	742	
2	J Brejc	SLO	53	

EURO-FLY, Mühlenthurnen, Switzerland, November 3-4 Report by Bernard Aslett

Picture in your mind autumn tints, Swiss cowbells, and the occasional train whistle in the background, all set against a breathtaking background of snow clad mountains, then this surely must be the most uplifting flying site of all. I speak as a long term "Swiss-o-phile", but I think few could disagree.

At the outset of Eurofly 2001 both F1C and F1B World Cup were still to be decided, with a potential of as many as four F1B competitors able to win.

The weather was perfect for Saturday. Little or no wind, clear skies and temperature rising from 5ºC at commencement to 10ºC, with occasional, tricky lift.

The contest was also distinguished by the choice of round maximums by the contest administrators. This might have been thought daring, considering the challenge (upheld) of the Canada Cup first round max. Walter Eggiman was noted, during the contest, gently but firmly pointing out that the contest instructions (received at registration) allowed the max to vary at the CD's discretion. However, it was pretty transparent, that the next round max was only decided and announced just prior to the commencement of the next round, the numbers still clear having been noted.

Being the last World Cup contest prior to the 30g ruling, it is interesting to look at the 35g performance of the F1Bs in these conditions. Thirteen (out of 39) dropped round 1, five further in round 2, another five in round 3, and only one in round 4. Pushing the max up to 5 minutes in round 5 reduced the flyoff to seven, with unusually both Andrjukov and Kulakovsky falling to tricky air. F1C had flown to the same maxes.

Following previous logic, the F1B flyoff was set at 7 minutes. Victor Rosonoks, who on past performance might have been thought to have the edge, squeezed the glide too close and stalled all the way down, still making 4.17 though. Zilberg and Kolic were close, but only three remained to go for nine. Silz proved the clear winner, thus taking the World Cup. He was clearly pleased and at the evening dinner, subjected all and sundry to a baritone recital, which I do not think it is unfair to say, was enjoyed – mostly by himself.

For the Anglophiles, the F1C contest held the main interest, where John Cuthbert was pursuing the World Cup. The task was made easier in that none of the main contenders had turned up, but, following comments earlier in the year, there was a point to prove.

John secured the World Cup impressively, with the only full house. He had trimmed his "Reductor" during the lunch break, but it was not to be required, when Truppe dropped over one minute in the last round. This was the first GB World Cup win and reflects the single-mindedness and dedication that John has exhibited in the last 15 months. He was justifiably elated with his success.

His win was not entirely uneventful, having climbed through an F1B (Teppo Sarpila?) in round 3, the disturbed pattern caused a fractured wing for the F1C, but the Wakefield was effectively "kitted". Both re-flies were successful.

Glider day started with fog and visibility to 100 metres. Start was delayed to after midday. The first round max of 3 minutes reflected the still limiting visibility, but zero wind. Subsequent rounds 2, 3, and 4 were flown to 5 minutes using the previous day's logic. This left only Rink and Valo to flyoff, out of the fifty five starters. Rink won comfortably by nearly a minute, but Valo's performances are notable in that comparatively recently he has been largely involved with combat flying. Anton Van Eldik at fifth was compensated, in some measure, for his Lost Hills disappointment.

Thus ended a good contest in beautiful surroundings, with many requests that it should be an annual event.

F1A 58 flew

1	A Rink	GER	1080	+334	
2	J Valo	FIN	1080	+277	
3	G Aringer	AUT	1055		
4	F Hofmann	GER	1037		
5	A van Eldik	NED	1022		
6	E Zuger	SUI	1020		
7	R Walliser	GER	997		
8	C Bachmann	SUI	978		
9	F Adametz	GER	975		
10	I Kreetz	NED	965		
11	S Chabot	FRA	955		
12	A Maurer	SUI	954		
13	V Brussolo	ITA	940		
14	J Godinho	FRA	936		
14	D Trumpf	SUI	936		
16	W Gerlach	GER	927		

F1B 39 flew

1	B Silz	GER	1260	+420	+405
2	H Schoder	SUI	1260	+420	+353
3	T Sarpila	FIN	1260	+420	+238
4	I Kolic	YUG	1260	+417	
5	I Zilberg	GER	1260	+415	
6	P Monninghoff	GER	1260	+266	
7	V Rosonoks	LTU	1260	+257	
8	B Aslett	GBR	1246		
9	M Lovato	ITA	1245		
10	M Seifert	GER	1235		
11	A Andriukov	USA	1226		
12	T Wiesiolek	GER	1220		
13	W Ghio	USA	1216		

F1C 16 flew

1	J Cuthbert	GBR	1260
2	S Seydel	GER	1231
3	C Gretter	GER	1212
4	G Zsengeller	HUN	1211
5	D Meissnest	GER	1198

CARGOLIFTER INDOOR INTERNATIONAL

Report by Bob Bailey and Laurie Barr

This meeting on October 13th and 14th was ably organised on behalf of the Deutscher Aero Club e.V by Gerhard Wobbeking in spite of health problems. It was the third event to take place in the superb and enormous Cargolifter hangar, which is situated at Brand, an ex Soviet airfield about 30 km south of Berlin.

Laurie Barr reports that he took Bob Bailey and Geoff Jones via the overnight ferry from Harwich to Hamburg. "This port is deep inside Germany and on the following day we drove down the 400km to Markisch Bukhholz. On the way back we left Markisch at about 10.20am and arrived at the docks in Hamburg for the return ferry by 3.45pm, the exact time for loading the car on the ferry."

The hangar, with its semicircular cross section and hemispherical ends, each with 6 doors is bigger than it actually looks. The hangar skinning consists of two layers of a special plastic material between which is ducted moist air to keep the hangar cool in summer and warm enough in winter to prevent build up of snow on the outside, which might otherwise put too much weight on the structure. Throughout the meeting, the weather improved from a dank and drizzly Thursday to warm and sunny (about 20ºC) on Saturday and Sunday. The second day was better, and best of all, was when they switched the lights on in the evening! It is not known what the temperature might have been at the roof, but judging from the models' behaviour, it could not have varied that much.

The available ceiling height is 107m, more than twice the height of Cardington and well in excess of that for any other building available to indoor fliers. By comparison, Slanic has about 64m ceiling height. In order to make best use of the height, plenty of power on stiff and well controlled models was required. This hangar is so big that nobody hit the roof, or hung sideways either! The only reason you would need balloons, was to catch a badly adjusted model, or to avoid a mid air collision.

On the Saturday morning the air was turbulent at lower levels (up to 60' or more) with considerable drift, which was not encouraging as we had been told that at an earlier meeting, these conditions had prevailed throughout the day. I suspect that this was the March meeting at which the outside temperature was close to 0ºC with about 18ºC inside. However as the day progressed, the conditions calmed and improved, being generally good from 3pm onwards. Trying to trim an F1D earlier on was difficult to say the least.

Despite the reasonable air temperature, the air did not seem to be as buoyant as I for one might have expected in that despite lots of height being obtained, the times were lower than expected. Until later in the afternoon, 31 min for F1D was difficult to achieve.

The contest format was 3 flights for each event on each day (until 8pm on Sat and 5pm on Sun), the best 2 from the 6 being taken for the contest placing. As a bonus, sport flying was allowed until 8pm on Sun for those who didn't have to dash home. For us Brits, this was too good an opportunity to miss!

F1D was the most well supported event with many models in the air most of the time. The 41 entries who flew came from 10 countries, but, not surprisingly, there were no transatlantic competitors. There is a huge upsurge of interest in F1D to the new rules, because they are easier to build, but not necessarily to trim, and also with the advent of the superb new Y2K2 film which is as light as thick microfilm, but vastly superior in strength. The models can be flown safely in many more sites than the old rules models. Damage to the models is usually much less extensive than with old rules F1D.

A considerable variety of designs was in evidence with unbraced models in the majority. Dieter Siebenmann from Switzerland was flying a model with a steeply angled tailboom, lots of wing incidence and a prop with outrigger sparless blades built using carbon fibre. Peter Kuttler's model has an elliptical profile wing, rear fin and a prop with highly swept tips resembling CAM electric model props. The tips of the prop are highly washed out. Peter caused a sensation by recording a big increase in flight time - 35.32! This I believe is the longest new rules F1D flight recorded to date and put him in the lead. He did not record any flights on the 2nd day and was narrowly beaten into 1st place by Lutz Schramm who improved with every flight, to win by a mere 5 sec. On this showing, the Germans can expect to be strong contenders for next year's World Championships in Slanic, particularly as they hope to run 4 meetings in the Cargolifter next year. We'll be there for some at least!

Most F1D fliers were using fixed pitch props and many models climbed to 80 metres or more; this is well in excess of that available in Slanic. Such heights are considerably more than anticipated before this year. Generally, it seemed that to do the time, one needs the altitude, as is the case in Slanic, where there is little temperature increase with height. If, as in Cardington, it is significantly hotter at altitude, the air is more buoyant and helps in extending the climb and cruise phases of flight. The extra height of the highest climbs gives a longer let down. You have to fly the model flat out, and this means a less "draggy" trim, and also flying with almost no back off from full turns, using every last bit of power the model will stand.

In EZB, with 28 fliers, the Brits soon showed their dominance. Roy Wilson was delighted to beat the magic 20 min barrier with an excellent start of 22.05. Most models showed a steep safe pattern and climbed to heights well in excess of Cardington. John Tipper's model probably climbed higher than anyone's (probably 250ft or more) and beat my long standing 1.2g EZB record set at Cardington in 1994 with 27.07. A backup of 27.02 on the 2nd day gave him a large and unassailable lead. However, Geoff Jones, flying his very reliable model (a past British Nats winner) put in an excellent 26.35 to take second place.

The Brits took the first 6 places in EZB which did not include me since my model refused to behave under high power and I abandoned the struggle.

However my 35cm model on its first outing in a large site behaved impeccably after a minor weakness in the motor stick was sorted out and the first flight of 32.03 was the longest to date. On the second flight, the model climbed to around 80m to record 33.19, sufficient for a comfortable win. John Tipper and Geoff Lefever were second and third to give us a clean sweep.

It is very difficult to see EZBs and 35cms at high altitude against the buff coloured background; the dodge here is to change the viewing point to see the models against the dark grey background of the doors where they are much easier to see. This problem exists at Slanic but no change of viewing position alleviates the problem there!

Laurie Barr flew his one and only F1M to great effect, beating Reiner Lotz, who would, by all accounts be the favourite in lower ceilings, into second place. Only the Germans and the Brits flew in this event.

We all found that it was not possible to fly in 4 events, which many of us entered, particularly on the first visit to such a unique site. It is an absolute 'must' for any indoor duration flier and provides a challenge which I think can only matched by Slanic in terms of the high power requirement. Nothing gung ho about this site (wind up and hope for the best); whether it is possible for any of the current classes of models to reach the top, remains to be seen but some of the F1D's got pretty close.

In the informal session after the contest had finished John Tipper, Derek Richards and Laurie Barr took the chance to fly old rules F1Ds but some problems meant that times were not as good as hoped (50 min target, best achieved 39.54 by Derek). These models should be able to reach the top with something like a Slanic set up. Bob Bailey had to try for more with the 35cm which with a slightly lighter motor and more turns climbed very high and deadsticked with the motor hanging from the rear hook (as did John Tipper's F1D in Slanic 1998). A new, possibly a record time of 36.23 was set. See plan in this issue.

A different ending to an excellent meeting in a fabulous site (given reasonable weather outside) which I hope was enjoyed by all. Here's to next year! Gerhard hopes to have about four events next year, with the German Championships held in June or September, when the weather will be warmer, and better!

Cargolifter said that they have plans to build an identical hangar in North Carolina, and that they hope to build 40 airships! You lucky guys in the States. You could put Lakehurst and Akron into it, and have room for Cardington as well.

F1D 41 flew

1	L Schramm	GER	33.03	34.25	67.28
2	P Kuttler	GER	31.51	35.32	67.23
3	R Green	GBR	31.20	35.25	66.45
4	J Tipper	GBR	33.30	31.39	65.09
5	D Siebenmann	SUI	33.19	31.32	64.51

F1L 28 flew

1	J Tipper	GBR	27.07	27.02	54.09
2	G Jones	GBR	25.50	26.35	52.25
3	L Barr	GBR	25.03	24.55	49.58
4	B Hunt	GBR	23.49	23.38	47.27
5	R Wilson	GBR	23.20	23.03	46.23

F1M 12 flew

1	L Barr	GBR	18.51	19.47	38.38
2	R Lotz	GER	18.38	19.04	37.42
3	B Schlosser	GER	16.57	17.04	34.01

35 cm Plastic film only 7 flew

1	R Bailey	GBR	32.03	33.19	65.22
2	J Tipper	GBR	28.18	30.19	58.37
3	G Lefever	GBR	24.01	24.51	48.52

35 CM MODEL BY BOB BAILEY

This model started life as a scaled down version of my old rules F1D which had, on occasions flown extremely well. I preferred the layout to a tandem model, for which, getting the CG in the optimum position poses a very difficult problem structurally. Guidance was sought from Geoff Lefever and John Tipper in terms of wood sizes, prop diameter and pitch etc before starting.

The prop ribs are split and attached to the sides of the spar, to ensure the covering is flush with the spar, as used on my F1D props. There appears to be a distinct climb advantage compared with the usual construction, for which the ribs are attached to the top of the spar, leaving a gap. I decided also to take on the challenge of building a VP prop on the style of those that Ron Green, Geoff Lefever and I use for F1D. To my knowledge this had not been done.

At the time of writing, details of Ron's F1D plan have not yet been published, but I understand that they soon will appear in Indoor News and Views.

Initial testing showed that the tailplane was too stiff since it showed no sign of bending; I replaced it with a lighter one covered in microfilm and then a third, covered in Y2K2 film, for more robustness and ease of handling.

Further discussion with Geoff pointed to a larger wing; I chose a chord giving about the same aspect ratio as that for a new rules F1D and the new wing seemed to show a significant improvement. Further testing at home to optimise the prop pitch indicated that a pitch of about 19 in gave significantly lower power consumption on cruise than higher values.

The main trimming took place in a low ceiling site, this also being used to test the VP prop. Conditions at Cardington had not been good enough when time was available. I found out in time that the 35cm contest at the Cargolifter hangar outlawed microfilm; the prop was accordingly recovered with Y2K2 film.

At the Cargolifter hangar the stick required some strengthening at the front bearing and the model performed impeccably thereafter using the fixed pitch prop. This gave a fast safe climb to heights well in excess of 250', at which height, the model is difficult to see, particularly against the buff coloured background!

After the contest, an attempt was made for a longer flight time with a slightly longer motor and more turns. The model seemed to climb very close to the ceiling and was completely out of turns at at least 40', with the motor eventually hanging (very conveniently) from the rear hook. This gave a best time of 36.23 from about 3000 turns. Is this a record?

FAI INDOOR RECORDS

Provisional claim: Class F1L record no.116-c duration (ceiling 15m - 30m): 21 min 23 sec by Akihiro Danjo (Japan) at Kanagawa (Japan) on October 20. The current record of 19.53 was set by Akhiro on May 27 2001.

The following record has now been ratified:

Class F1M record no.117-d duration (ceiling over 30m): 18 min 14 sec by Akihiro Danjo (Japan) at Nagano (Japan) on June 23. The current record of 16.12 was set by the Jonas Romblad on March 3rd 2001.

CROYDON WAKEFIELD DAY OCT 21

Middle Wallop seems to have its own micro-climate, for on a Sunday when less than 60 miles away a months rainfall fell within one day, the airfield enjoyed only moderate winds, grey skies and not a drop of rain.

A sizeable entry flew in six classes but surprisingly few made the flyoffs. It seemed the air was going vertically downwards at times, catching out several potential winners during the day. The uniformly grey weather and constant air temperature made air picking well nigh impossible although, as usual, a clever or lucky few managed it.

Thanks to the liaison efforts of Mike Parker and John Thompson with the local farmers, out of field retrieval was possible and 'proper' flyoffs were held.

In F1B Trevor Grey flew early. His 3.39, a no lift F1B time, seemed beatable. Phil Uden waited hopefully until the last minute only to find comprehensive sink (and a short DT?) for a 1.39 flight.

The early birds caught the 'therm' again in Vintage. Ed Bennet's fine 4.02 and Spencer Willis' 2.46 were flown at the start of the period (both using Horry designs) whereas Jerry Ferrer's normally guaranteed 3 min Korda could only manage 1.50.

The Croydon Club introduced prize vouchers as awards, together with the usual annual trophies, and are grateful to Flite Hook for generously cooperating with the scheme.

F1B 4 rounds 2.30 max

1	T Grey	10.00+3.39
2	P Uden	10.00+1.39
3	C Chapman	9.44

4 oz Vintage 3 flts x 2.30

1	J Taylor	7.30+2.42
2	A Longhurst	+2.31
3	T Bird	7.02

Classic 3 flts x 2.30

1	M Croome	7.24
2	C Williamson	6.54
3	N Farley	6.19

Prima F1B 3 flt x2.30

1	G Kent	6.32
2	D Ridley	6.25

8oz Vintage 3 x 2.30

1	E Bennet	7.30+4.02
2	S Willis	+2.46
3	R Tiller	+2.08
4	G Ferrer	+1.50

P 30 3 flts x 2.00

1	T Challis	6.00
2	R Tiller	5.53
3	R Kimber	5.06

NFFS POWER BOOK

Keith Hoover writes: With the support of the National Free Flight Society, I am creating a Power Duration Book for 2002, the tenth anniversary of the first NFFS power book. A number of FF Power advocates have already contributed summaries of their most recent work. There will be an even greater emphasis on persons than in the first volume, pointing up historical roots, present developments and paths to a healthy Free Flight future. The format is similar to the Zaic Yearbook. Planned sections and contributions to date include:

An Integration of Classic and Current Aerodynamic Concepts: Carl Goldberg, Charles Sotich, Charles Hampton Grant, Donald Foote, Sidney November, Bill Forrey, Frank Zaic, Bill Bogart & Bud Rhodes, Richard Miller, Ron St. Jean, Herman Andresen.

Innovation: New Ideas for FF Power Enthusiasts: Bob Mattes, Joe Slovacek, Evgeny Verbitsky, Gil Morris, Ron St. Jean, Doug Gilbreath.

Design, the Execution of Concepts: Ed Keck, Norm Poti, Doug Joyce, Mike Achterberg, Bill Lynch, George Fuller, Mario Rocca, Ralph Cooney.

Propulsion, Quality Engines: Henry Nelson, The AD 1 cc FIJ Powerplant, Cyclons, Doug Galbreath, Randall Hopkins (Fox .049 Revival), The Verbitsky Geared FIC motor, Randy Linsalato (custom made engines), The VA Mk. II 1/2 A engine, The Norvel explosion.

Other Duration Propulsion systems (Electric, C02): Charles Groth, Gerd Woebbeking, Don Hughes, Ron St. Jean, John Worth, Fritz Mueller.

Broader Concepts of Power Duration Flying, including *Micro-Electrics.*

I am inviting your participation in this book. Suggested article length is: print only 3000 words, with pictures 1500 words, plan with text 800 words. A comprehensive biographical statement with address and phone number requested. The deadline for contributions is January 2002. Keith's contact details are:

Keith K Hoover, 1 South 224 Rochdale, Lombard, IL 60148, USA; tel: +1 630 620 1761; fax: +1 630 705 0398, E-mail: Keithgerda5@cs.com

VALLEY FEVER

Peter Tribe: Just a note to all who went to California recently; George Fuller has been unwell since returning from California, and has been in hospital since Thursday with lots of tests and interested medical staff clustering around him- the diagnosis is valley fever. He has been most unwell, but his wife tells me that he is beginning to feel a bit better now. So, for others who went there, if you have subsequently been persistently unwell, you should perhaps have a check up.

A NEW APPROACH TO POWER MODELLING.

From George Fuller, written from hospital while recovering from valley fever:

How do we improve FF power duration performance without spending lots of money?

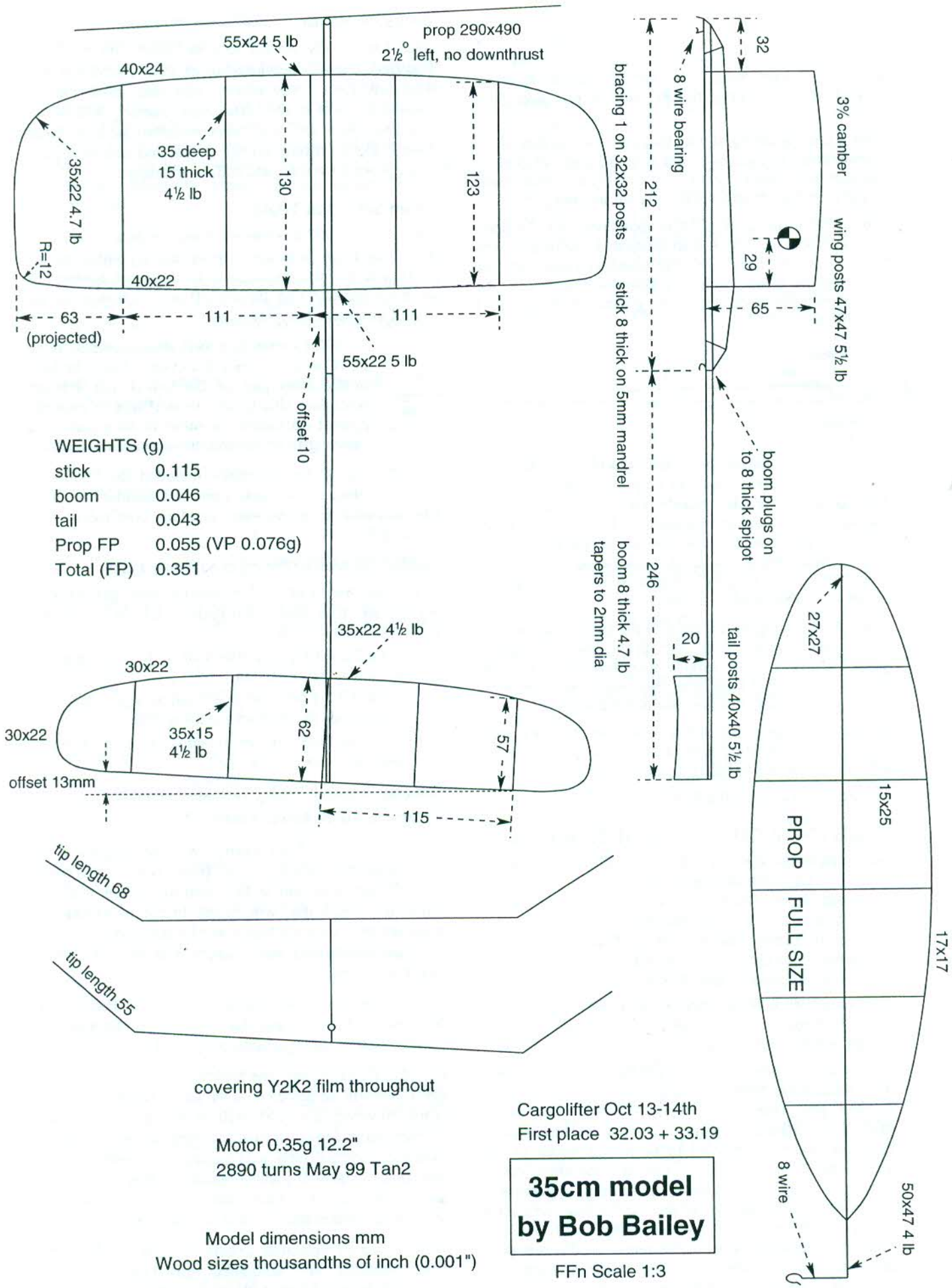
My years of power flying have been very interesting and I humbly hope I have helped the development of the power model. Now it's quite unbelievable the way the two stroke engines have improved over the years, and now with the introduction of the geared motors power will be squeezed out even more. The big snag here is you are looking at £600 for the engine to get more power duration.

Now… I have a bee in my bonnet about drag, turbulence, vortices, etc, around the engine. If we could get it cleaner (more streamlined) at the front around the engine the drag would be cut down and therefore speed should increase with the propeller being more efficient.

In the past I tried to get the engine back as far as possible with the wings out of the slipstream, but since using VIT and moving the CG forward. I realise models are going faster, in fact I am now going lower and lower with fuselage heights. I reason the only reason you want a fuselage is to join everything together.

Now basically with the new types of today's construction, i.e. carbon, metal, etc, lots of things work that we shouldn't, like high aspect ratio wings, small tails, and no pylons.

The one thing I have found over the years is keep your moment arm long. In the past I have found it quite important to keep the tail well away from the wing wash.



covering Y2K2 film throughout

Motor 0.35g 12.2"
2890 turns May 99 Tan2

Model dimensions mm
Wood sizes thousandths of inch (0.001")

Cargolifter Oct 13-14th
First place 32.03 + 33.19

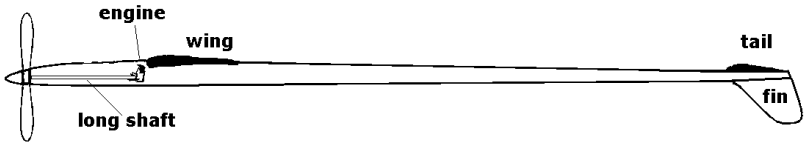
35cm model
by Bob Bailey

FFn Scale 1:3

Now what am I looking for? Everything long: span, moment arm, and, yes, nose. If we can cut the drag down at the front we will get more efficiency, more speed and, hopefully, greater height from climb. I feel we have got to look at the layout of the RC electric powered speed models.

Now I can't understand why they put cooling fins on FF competition engines. We only run full bore for 5 to 10 seconds and want engine hot as quickly as possible and could possibly get engines thinner for less drag.

Now what I am looking for is something like the drive on a hydroplane. Why not an elongated engine pan with bearings at the front. OK, the question comes up, the revs will go down, which is acceptable and with the cleanness at the nose streamlining increase the speed of the climb.



The above is something I am looking for. Is there somebody out there who can help or do you think my idea is not workable? Surely with magnesium alloy titanium a long engine pod could be kept light. I expect revs must go down but think the streamlining will more than compensate. If we don't try we won't know. If it does work it will only be a matter of time that a geared motor would be fitted.

With the advantages of weight in the right place, needle valve access away from the prop, but the biggest advantage is a nice small streamlinined boss. The propeller will fold back nice and snug. No chance of fouling the cylinder head or catching the wings.

Is there someone out there who can see my idea working? I am a wood man at heart and looking for an engineering genius to help me with this idea.

Contact George on 01404 841609.

NEWS FROM BMFA FF TECH COMMITTEE

Committee for 2002. The FFTC for 2002 comprises:

Dave Clarkson (newly elected)
Alan Gibbs (second year of office)
Chris Strachan (newly elected)
Geoff Stringer (second year of office
Peter Tribe (second year of office)
Mike Woodhouse (newly elected)

The committee will meet on 1st December to determine committee posts, co-option of any additional members, and the way forward for next year.

Thanks are extended to the retiring committee members. John Barker has been Chairman and Council Delegate for the past two years, with this last year being particularly difficult. During this period he has worked extremely hard and proved to be a true leader to the team. John Cuthbert has been treasurer for many years, and kept very tight control upon any unnecessary expenditure in addition to being a very active participant in the committee's affairs. Clive Westerman was co-opted onto the committee as Secretary for the last year and thanks are expressed for the efficient manner in which he carried out this function.

Barkston Heath

2002 has already got off to a bad start with that news that Barkston will be closed to us from 1st March until 31st July for runway repairs, and soon after that the game birds will arrive!! The main casualty will be the Nationals; steps are being taken to determine if we could have Barkston if only for this event, and also to explore other potential venues and different formats.

Team Selection Trials

F1A/B/C for 2002 European Championships

1. The Team Selection Committee appointed by the FFTC has given consideration to the most appropriate methods for selecting the F1A/B and C teams for the 2002 European Championships .

2. The Committee have recommended to the FFTC that two selection events should be held in the early part of 2002, and that a ballot procedure should also be prepared in case the present difficulties or other matters prevent a meaningful result from these selection events.

3. The FFTC has therefore included the following events in their Provisional Contest Calendar for 2002 (the calendar is provisional pending confirmation of venues) :-

Sunday 31st March (Easter) at Salisbury Plain

This event would be held to special rules, generally in accordance with rule 3.2.6.1(c) to (j), but with the following amendments:-

Rule 3.2.6.1.(c) The trial will be held on one day commencing at 9.00am.

Rule 3.2.6.1.(d) The competition will consist of five rounds flown from a starting line.

The minimum number of rounds to count towards team selection will be one.

Saturday 20th and Sunday 21st April at Sculthorpe

This event will be flown to rules 3.2.6.1 (c) to (j).

4. Points from both events will be calculated in accordance with rule 3.2.6.1(j). Both events are to count towards team selection. In the event of one non trial, the remaining single trial will count. In the event that no trials are held, then the teams will be selected by a ballot of those competitors who competed in the 2000 team selection events.

5. The results of the Selection Events (or Ballot) will be considered by the Selection Committee who will then present their recommendation to the FFTC.

6. Providing at least one selection event is concluded, the Team will be selected on or immediately after 21st April. However, the FFTC will, at the appropriate time, prepare ballot forms for election purposes which can be distributed immediately it is evident that neither of the selection events will yield a result. By this means, it is anticipated that the Team Selection process will be concluded no later than the end of April 2002.

NOTE Team selection events for the 2003 World Championships are scheduled for 11th/12th May, 15th/16th June and 12th/13th October 2002.

Team Managers for 2002.

Acting Team Manager F1A, F1B, F1C

Applications are invited for the position of Acting Team Manager for the 2002 Free Flight European Championships in Hungary. Applications should be sent to the FFTC Secretary to arrive by 10th January 2002. It would be anticipated that the appointed Acting Team Manager will be considered for the position of Team Manager when the team selection process has been completed.

Team Manager-Space Models

Applications are invited for the position of Team Manager for the Space Model World Championship to be held in the Czech Republic in September 2002. Applications should be sent to the FFTC Secretary to arrive by no later than 15th January 2002.

BMFA CONTEST CALENDAR 2002 PROVISIONAL

February 17 North Luffenham	Winter Open. O/P (Frog Senior), O/R, O/G, SLOP, EOP, Vintage
February 24 Near Sheffield	F1E Team Selection for 2002 Team
March 3 Area venues	First Area event. O/R (Gamage), F1C (Halifax / Plugge), F1H, Tailless
March 10 Near Sheffield	F1E Team Selection for 2002 Team
March 17 Area venues	Second Area event. O/G, F1B (Weston / Plugge), F1J/BMFA1/2A HLG, Catapult Glider
March 24	F1E Team Selection. Near Sheffield
March 30 Salisbury Plain	Easter meeting. O/R, O/G, O/P, F1G, F1H, F1J/BMFA1/2A
March 31 Salisbury Plain	Team Trials F1A, F1B, F1C for 2002 Team
April 7	Northern Gala. O/G (CMA), O/R (Caton), O/P (Hamley), SLOP, F1G, F1H, F1J/BMFA1/2A, Mini-vintage, CO2, E.30, HLG, Catapult Glider
April 14 Area venues	Third Area event. O/P (White), F1A (K&MAA / Plugge), F1G, Vintage
April 20-21 Sculthorpe	Team Trials F1A, F1B, F1C for 2002 Team
May 5	F1E Team Selection. Near Sheffield
May 11-12 Sculthorpe	Team Trials F1A, F1B, F1C
May 19	F1E Team Selection. Near Sheffield
June 1-3	National Championships. O/G (Thurston), O/R (Model Aircraft),O/P (Shelley), SLOP (Falcons)Tailless (Lady Shelley), Womens Open (Womens), Junior Open (Frog Junior), F1A (Ronytube), F1B (Fred Boxall), F1C (Eddie Cosh), Vintage (Jubilee), OEP, E.30, Junior Kit, Windrush, Bowden, F1H (BA), F1G (308), F1J/BMFA1/2A (Hales), Mini- vintage, HLG, Catapult Glider, CO2, P.30
June 9 Area venues	Fourth Area event. O/P Team (Keil/Plugge), F1B (Gutteridge), F1H, CO2, EOP
June 15-16 Sculthorpe	Team Trials. F1A (Nordic), F1B (Mike Duce), F1C (Pete Buskell)
July 7 North Luffenham	Summer Mini. F1J/BMFA1/2A, SLOP, Mini- vintage, E.30
July 14 Near Sheffield	F1E Team Selection (S.M.C. Trophy)
July 21 North Luffenham	Silent Mini. F1H, F1G, P.30, HLG, Catapult Glider, CO2
August 4	F1E Team Selection. Near Sheffield
September 1 Area venues	Fifth Area event. O/R Team (Farrow / Plugge), F1A (SMAE), F1J/BMFA1/2A, SLOP
September 6 (Friday) Little Rissington	Southern Gala. O/G (Pilcher), O/R (Flight), O/P (Short), F1H (Ripmax), F1G, F1J/BMFA1/2A (Quickstart), SLOP, Mini-vintage, E.30, CO2, HLG, Catapult Glider
September 14-15 Sculthorpe	Stonehenge Cup. F1A, F1B, F1C World Cup Event
October 6 Area venues	Sixth Area event. O/G Team (Model Engineer / Plugge), F1C (Astral), F1G, Mini- vintage
October 12-13 Sculthorpe	Team Trials F1A, F1B, F1C
October 20	F1E Reserve date for Team Selection or Experimental

NFFS SYMPOSIUM REPORT 2001

The National Free Flight Society's Symposium Report 2001 has now arrived at FFn. As announced with the subscription form last month, it is available from FFn for £20.10 including postage to UK and mainland Europe (add £3.50 for airmail outside Europe). The 164-page contents produced by editor Ross Jahnke are as follows:

THEORY	
Ian Kaynes	Model performance calculation
Peter King	Computer simulations and 30g F1B
John O'Dwyer	Small, Medium, or Large: Which is the best P-30 for you?
Hermann Andresen	Turbulator alternatives
PRACTICE	
Jeff Annis	Finite Element analysis of rubber model truss fuselages
Rex Hinson	Jigs and fixtures: don't build without them
Aram Schlosberg	Composite outer wing panels
Tom McCoy	Building a modern oldtimer
Gil Morris	Solutions to erratic vertical climb
Charles Groth	Electric duration by the numbers
Dave Rees	Electric power FF scale events
Robert Wilder	IC-powered indoor models
HISTORY + PHILOSOPHY	
Louis Joyner	Impact of technology on free flight
Mike Woodhouse	FF cottage industry & my part in it
Jim Buxton	Plea for international competition in F1N
Jesse Aronstein	The model club & Science Olympiad
Robert L Perkins	The NFFS National Cup
AWARDS+HONORS	
Norm Poti	Ten Models of the Year
Bob Beecroft	Hall of Fame
Robert Stalick	President's Report

JOE MAXWELL'S SECRETS

Joe has produced a marvellous little book "The Secrets of Aids for Advanced Aeromodelling". It describes the methods and machines he employed to make all those marvellous things he manufactured. This is sure to appeal to everyone who bought Joe's products and, indeed, it is packed with ideas which help anyone thinking of ways of produce any components of their own. The contents are

Introduction Joe sets the scene of the venture starting in 1983 and finishing in 1998. The book fulfils a promise to describe the processes which was made in the souvenir catalogue of 1994. Furthermore, Joe promises to provide full detailed instructions to anyone wanting to replicate the processes.

Machines Describes the basic four machines: radial arm saw, planer/thicknesser, band saw, and belt sander.
Material The timber and adhesives used and continued work to find good suppliers of fine quality materials.
Propellers - Special Apparatus The basic carrier used for machining props. One was made which was intended to be a quick proof-of-concept affair, but it worked so well it continued in use (you can well image any test piece made by Joe would be so good that it could be used forever).
Propellers - Basic Machining How the props were rotated in the carrier according to a pitch template and repeatedly sawn.
Propellers - Jigs, Forms, and Moulds Again a process including repeated passes with the saw including reference to a camber template, adjusting the height of the saw until it just touched at each point - a skilled adjustment in itself, relying in part on listening for contact.
Propellers - Blade Blanks The semi-finished blades machined to the required pitch, blade outline and undercamber saved so much time in making props. However, Joe doubts that any of his customers realised how much trouble he took to get the grain right.
Balsa Sheets The first sheets offered were matching packs of blade outlines for prop laminating. This led to supplying hundreds of sheets of blasé to customer's specific requirements. The careful machining process is described, including rotating the saw to provide quarter grain.
Trailing Edges Made for specific aerofoils, thinner and better wood than commercial TEs.
Shaping with a Skewed Saw The general method to produce a concave shape using a skewed circular saw and used in the following products.
Cambered Building Boards Structure of the boards
Building Boards - Constant Chord The simplest type of board to machine.
Taper Carrier An adjustable carrier to position the board to allow machining to taper and warp.
Building Boards-Tapered Making the board on the taper carrier.
Solid Balsa Wings As Joe says, these did more than any other product to establish the reputation of his enterprise. No wonder, they were real works of art. In the early 80s F1B was dominated by Hofsass and Doring with their solid-winged Espada. When Joe advertised ready made solid wings he was swamped with orders. Fortunately he could get suitable balsa with density around 4.8 lb/ft^3.
Ribs The process for making those superb ribs.
Mandrels A guided mechanical set-up was used to avoid the insurmountable problems of directly turning a long thin boom.

The book concludes with a few copies of pages from the catalogues. Only thing was missing: I would have liked to have had a few more statistics of many of each of the components were produced over the years. These must be impressive numbers, judging by the number of satisfied and impressed customers!

The price of the book is £9.00 post paid in the UK, £10.00 or US $15.00 (in US bills) elsewhere in the world. It is obtainable from the:

J H Maxwell, 11 Windsor Place, Stirling, FK8 2HY, Scotland.

CHOBHAM COMMON TREE CHOP

Geoff Smith:

The annual Chobham Common tree clearance in the free flight zone will take place on Sundays January 27th and February 17th. Just two hours of good exercise and self preservation of this important flying site. Meet in the Staple Hill car park at 10am.

UK COMPETITION NEWS

MORLEY/NORTHERN AREA CHRISTMAS FLYER is an unrestricted max event to be held at Church Fenton on December 9th. The events are open rubber, open glider, combined power (open power 7 sec run, slow open power 10 sec glow, 12 sec diesel, open electric 30 sec), vintage, P30, combined E30 + CO2. Contact Dennis Davitt 0113 2675433. Names must be on the security list, contact Joe Northrop 0113 2581292. Take BMFA card as identification. Check day before meeting either with contacts or web site http://members.aol.com/morleyff

COUPE INTERNATIONAL 2001 will be at Church Fenton on Saturday December 29th. Events are 80g (5 flights, use up to 3 models), vintage (designs published before 1/1/1957, proof of authenticity required, use up to 2 models), 100g (one entry per model, ROG, fuselage cross section 20 sq cm). Contest starts at 10am, last entries taken at 2pm, contest closes 3pm. Pre-entry is requested enclosing a £1 fee which will be deducted from entry fees on the day. Entry fees for those pre-entering are £5 for one class, £2 for second and all subsequent entries. For entry on day the first entry is £10. £1 airfield fee for everyone bringing a model. No flight line, no rounds. Proxy flying is allowed. No restrictions on thermal detection systems. Motor heating allowed.

Contact to check status one or two days before event according to surname: surname starting A to I Dennis Davitt 0113 2675433, names J to R John Godden 0113 2521002, names S to Z Joe Northrop 0113 2581292. Names must be on the security list, contact Joe Northrop. Take BMFA card as identification.

30 GM WAKEFIELDS

As some of you will know from the SCAT website, I'm hope to pull together some thoughts on the 30 gm Wakefield. So, for example, what are Wakefield flyers thinking of doing about motor length/number of strands? What are you doing now, what might you do in future, and why the change? Similarly, what about the length of motor tubes and, maybe, model design? The rubber weight available to us has gone down by 25% in a very few years, and logically - surely? - there must be implications for design, rubber preparation and use, for props and for hubs.

All thoughts welcome, from anywhere in the world, by email to michael.c.warren@btinternet.com, by post to 30 Cole Park Road, Twickenham, Middlesex, TW1 1HS, or by fax to 020-8891 1970.

The sooner the better please, as I'm hoping to write the article over Christmas (not even I can watch The Great Escape again...) for publication next month. Thanks.

Michael Warren

FINAL RESULTS OF THE 2001 FAI FREE FLIGHT WORLD CUP FOR F1A, F1B, F1C

The final results of the 2001 World Cup are given here. There was one additional competition scheduled, the 37th Soko Cup in Bosnia during August. It has been reported that the competition was not held and so the results have been finalised without it.

There were 31 competitions this year, with a total entry in each class over all these events 1377 in F1A, 871 in F1B, and 346 in F1C. Along with 318 in F1E this made a record number of 2912 entries in all World Cup events. The number of different people scoring points in World Cup events were 314 in F1A, 210 in F1B, and 102 in F1C. It was notable that both F1B and F1C were closely fought with several people with a chance of each title at the last competition. Ivan Kolic lost the F1B lead he had held for much of the year, whereas in F1C John Cuthbert cemented his win with an emphatic victory in Euro-Fly.

Full results from all events are given for the higher placed people and just points total for the lower places presented here. The full results can be seen on the FAI web site (via www.fai.org/aeromodelling).

Key to results in F1A F1B and F1C

Abbrev+name			*No.flying in:*	**F1A**	**F1B**	**F1C**
MM	Max Men	USA	16-18 Feb	47	65	31
BC	Bear Cup	FIN	10 Mar	44	18	5
HL	Holiday on Ice	NOR	17 Mar	43	39	8
AC	AFFS Champs	AUS	13 Apr	11	10	3
SN	Southern Cross	AUS	17 Apr	7	8	3
UP	May 40th Anniv	SWE	5 May	32	28	7
SV	Srem Cup	YUG	11 May	22	6	1
VS	Vsechov	CZE	18 May	74	29	9
EM	Conc. Nacional	ARG	23 May	20	14	6
PZ	Puszta Cup	HUN	2 Jun	123	58	28
NC	Novohrad Cup	SVK	9 Jun	47	20	8
SC	Scania Cup	SWE	16 Jun	25	13	5
CM	Castilla la Man	ESP	23 Jun	11	7	1
VH	Von Hafe Cup	POR	29 Jun	8	7	1
VB	Verbitsky Cup	UKR	6 Jul	48	27	17
SB	Sibiu Cup	ROM	12 Jul	28	11	1
AN	Antonov Cup	UKR	13 Jul	28	27	15
VJ	Voros Jeno	HUN	14 Jul	45	22	11
HC	Huron Cup	CAN	14 Jul	13	9	5
RN	National Chmps	RUS	20 Jul	58	45	26
PT	Poitou	FRA	3 Aug	100	55	18
SW	Summer Cup	POL	3 Aug	22	14	5
BD	Bodenland Cup	GER	24 Aug	80	47	18
IS	Championship	ISR	24 Aug	103	28	1
EF	Eifel-Pokal	GER	30 Aug	73	48	13
PC	Prilep Brand Cup	MKD	8 Sep	11	7	2
SH	Stonehenge Cup	GBR	15 Sep	18	24	10
CC	Canada Cup	CAN	6 Oct	104	94	46
SR	Sierra Cup	USA	18 Oct	48	44	24
KC	Krka Cup	SLO	20 Oct	27	9	3
BN	Euro-Fly	SUI	3 Nov	58	39	16

F1C WORLD CUP RESULTS

1	J Cuthbert	GBR	155	BN-1	UP-1	SH-1	VH-1	CM-1	PT-5	BD-6	CC-11	MM-16	
2	E Verbitsky	UKR	148	PZ-1	CC-2	MM-2	AN-2	RN-3					
3	P Watson	GBR	148	SR-1	PT-1	SH-2	MM-8						
4	A Babenko	UKR	116	VB-1	SR-3	PZ-4	CC-22	AN-1					
5	A Lindner	GER	115	HL-1	SC-1	PZ-12							
6	A Molchanov	UKR	114	EF-1	VB-2	PZ-9	BD-3	AN-4					
7	G Zsengeller	HUN	112	KC-1	PZ-3	BN-4	NC-4						
8	C Wachtler	GER	105	BD-1	VS-3	BN-6	PZ-12						
9	Z Szablewszki	POL	102	VJ-1	SW-1								
10	D Thomas	AUS	100	AC-1	SN-1								
11	M Roman	POL	97	VS-1	PZ-5	BD-5							
12	B Gutai	USA	96	SR-2	HC-3	CC-10	MM-9						
13	V Alexandrov	UKR	93	PZ-2	VB-3	CC-15	AN-8						
14	S Screen	GBR	84	PT-2	SH-4	MM-13	SR-12						
15	E Keck	USA	83	HC-1	MM-5	CC-17							
16	R Archer	USA	81	CC-1	SR-6								
17	P Plachetka	POL	81	SW-2	PZ-6	CC-13							
18	K Kuukka	FIN	81	BC-1	HL-3								
19	G Aringer	AUT	80	HL-2	EF-5	PZ-10	CC-20	BD-7					
20	O Maczko	HUN	77	NC-1	VJ-4								
21	C Gretter	GER	76	BN-3	NC-4	SH-5	BD-9						
22	R Truppe	AUT	75	VJ-3	SR-5	BN-6	PZ-11						
23	R Torgomadze	RUS	73	RN-1	VB-8								
24	A Kirilenko	USA	70	HC-1	CC-7								
25	T Niiranen	FIN	70										
26	S Seydel	GER	69										
27	J Roots	EST	65										
28	M Nogga	GER	63										
29	K Happersett	USA	62										
30	V Tregubenko	UKR	62										
31	M Zito	ARG	58										
32	A Mikhajlenko	RUS	55										
33	D Johannes	USA	54										
34	J Szecsenyi	HUN	52										
35	P Ball	GBR	51										
36	D Iele	ARG	51										
37	K Stojanovski	MKD	50										
38	M Radu	ROM	50										
38	Z Kovacki	YUG	50										
38	U Zilbershtein	ISR	50										
41	D Joyce	USA	46										
42	K Oliver	USA	42										
43	P Maurer	SUI	42										
44	A Roux	FRA	41										
45	L Patocs	HUN	41										
46	V Patek	CZE	41										
47	R Szabo	HUN	41										

F1A WORLD CUP RESULTS

1	P de Boer	NED	159	PT-1	BD-1	SR-1	HL-14						
2	S Rumpp	GER	155	HL-1	VJ-1	SC-1	EF-4	PT-22	BD-6	UP-3			
3	J Valo	FIN	140	BC-1	PZ-2	BN-2	HL-3	SR-5	CC-9	SC-12			
4	V Stamov	UKR	140	MM-1	VB-1	PZ-3	SH-4	SR-7	AN-12				
5	P Findahl	SWE	131	SW-1	SH-1	CC-4	HL-4	UP-6	VJ-20				
6	M Holmbom	SWE	113	UP-1	HL-2	BC-6							
7	G Aringer	AUT	112	PZ-1	BN-3	PT-5	BD-11	CC-18	HL-15				
8	P Drapeau (J)	FRA	101	CM-1	EF-3	SB-8	PT-14						
9	O Stoev	UKR	100	SB-1	SR-4	PZ-8	NC-18						
10	V Crougenec	FRA	97	PT-2	SB-3	EF-6	CM-6						
11	F Kerner	HUN	96	EF-1	SV-4	VJ-8	NC-20						
12	A Notaros	HUN	93	SV-1	PZ-6	NC-8							
13	J Parker	USA	92	HC-1	MM-2								
14	I Bezak	SVK	90	VS-1	NC-4	PZ-20							
15	B van Nest	USA	88	VB-2	MM-4	HL-7	SR-17	AN-9					
16	K Kulmakko	FIN	87	CM-3	VH-3	VJ-4	HL-11	BC-12	MM-19	SR-22	PZ-18		
17	A van Eldik	NED	86	EF-2	BN-5	PZ-9							
18	P Mitchell	AUS	86	AC-2	SN-2	SR-20							
19	F Aberlenc	FRA	84	CM-2	NC-3	MM-14	BN-18	SR-19	CC-22				
20	B Ryz	CZE	83	CC-1	VS-4								
21	I Yablonovsky	UKR	81	NC-2	AN-5	CC-11	EF-12	VB-7					
22	V Morgan	AUS	80	AC-1	SN-3								
23	P Summersby	AUS	80	SN-1	AC-3								
24	T Weimer	GER	76	PZ-4	BD-4	SC-7							
25	E Galor	ISR	73	IS-4	CC-6	SR-6							
26	D Oldfield	GBR	73	VH-2	UP-8	MM-11							
27	C Bachmann	SUI	70	SR-3	PT-10	BN-8	NC-10						
28	J Abad	ESP	70	VH-1	HL-6								
29	J Voros	HUN	69	SV-3	PZ-5	CC-15	NC-15	VJ-5					
30	I Treger	SVK	69	NC-1	PZ-13								
31	S Makarov	RUS	68	VB-3	RN-5	HL-12	PZ-17						
32	J Cooper	GBR	68	CC-2	PT-6								
33	A Rink	GER	68	BN-1	BD-12								
34	D Varhos	SWE	66										
35	M Lihtamo	FIN	65										
36	R Walliser	GER	63										
37	M Koszonozskin	RUS	63										
38	R Holzleitner	AUT	63										
39	K Kubasch	HUN	63										
40	I Kreetz	NED	61										
41	P Seren	GER	59										
42	W Gerlach	GER	58										
43	A Barron	USA	57										
44	M van Dijk	NED	56										
45	Y Artemenko	UKR	56										
46	M Kochkarev	RUS	55										
47	M Moskovich	ISR	55										
48	R Kreetz	NED	55										
49	V Poliayev	RUS	53										
50	B Coussens	USA	52										
51	P Allnutt	CAN	52										
52	P Russky	RUS	52										
53	F Adametz	GER	51										
54	O Pshenychny	UKR	51										
55	D Zink	USA	51										
56	M Nardin	SLO	51										
57	O Krucky	CZE	50										
58	M Grueneis	AUT	50										
59	J Williams	GBR	50										
60	J Costabella	ARG	50										
61	L Picard	FRA	50										
62	Z Velkoski	MKD	50										
63	P Ronkanen	FIN	49										
64	R Fedishyn	UKR	49										
65	U Edlund	SWE	46										
66	V Nereng	NOR	46										

F1B WORLD CUP RESULTS

1	B Silz	GER	158	BD-1	BN-1	SC-1	VJ-2	VS-2	PT-3	PZ-9			
2	I Kolic	YUG	156	SR-1	VJ-1	VH-1	PC-1	CM-2	BN-4	VS-4	BC-7	BD-15	EF-23 PZ-10
3	O Kulakovsky	UKR	150	EF-1	VB-1	RN-2	SW-3	PZ-4	NC-7	BN-17	SR-20	MM-24	AN-2
4	A Andriukov	USA	149	CC-1	MM-2	SR-2	HL-5	BN-11					
5	Y Waltonen	FIN	121	CM-1	EF-2	UP-4	BC-4	VJ-9	VS-10	SR-14	HL-16	BN-16	PZ-22
6	V Rosonoks	LAT	112	PZ-1	HL-3	EF-5	BN-7	SW-6	BC-8	CC-22			
7	A Kutvonen	FIN	112	BC-1	UP-2	BD-9	EF-17						
8	S Stefanchuck	UKR	111	AN-1	EF-3	PZ-5	SW-5	HL-17	SR-21				
9	A Zeri	NED	110	PT-1	SN-3	AC-4	EF-9						
10	W Ghio	USA	103	MM-1	HC-3	HL-10	BN-13	CC-21					
11	I Zilberg	GER	101	CC-2	BD-4	PZ-7	BN-5	NC-6	EF-8				
12	P Ruyter	NED	101	HL-2	SH-3	MM-5							
13	H Meusburger	AUT	100	HL-1	SH-4	VJ-6	KC-5	PT-15	EF-20				
14	D Zulic	SLO	100	SV-1	KC-1								
15	R Blackam	AUS	99	AC-2	SN-2	MM-11	SR-15						
16	A Bukin	UKR	95	SW-1	VB-5	EF-7	CC-12	HL-9	AN-5				
17	R Peers	GBR	94	SH-2	HL-4	MM-6	CC-20	PT-18					
18	M Woodhouse	GBR	89	UP-1	VH-4	EF-16	MM-23						
19	A Chik	UKR	88	NC-1	AN-6	PZ-12							
20	J Krasznai	HUN	86	PZ-2	NC-2	VJ-5							
21	S Tedeschi	FRA	85	CM-3	VH-3	PT-5	NC-5	VS-9	SR-12	BD-16	BN-15	PZ-20	
22	T Bond	AUS	84	SN-1	CC-9	SR-17							
23	M Lovato	ITA	82	VS-1	BN-9	PZ-18							
24	P Monninghoff	GER	76	VS-3	CC-11	BN-6	PZ-11	EF-15	BD-23				
25	M Rolandas	LTU	75	UP-3	BC-3	HL-15	EF-22						
26	I Vivchar	UKR	73	BD-3	PT-9	SH-7	VB-9	EF-14					
27	M Seifert	GER	73	AC-1	SR-5								
28	H Schoder	SUI	72	BN-2	PT-7	BD-20							
29	J Fitch	USA	70	MM-3	SR-3								
30	A Burdov	RUS	70	MM-4	SR-7	RN-10							
31	O Krysko	UKR	69	CC-5	SW-4	VB-11							
32	A Rybchenkov	RUS	66	RN-3	SR-8	VB-14							
33	E Shternlib (J)	ISR	65	SB-1	IS-12								
34	I Itzhak	ISR	64										
35	D Greaves	GBR	63										
36	T Sarpila	FIN	62										
37	Y Blazhevich	UKR	61										
38	G Wivardsson	SWE	61										
39	E Gorban	UKR	57										
40	R Seifert	GER	57										
41	H Herbsthofer	AUT	57										
42	A Shagun	UKR	56										
43	S Ilin	RUS	54										
44	K Salzer	AUT	54										
45	A Khrebtov	RUS	53										
46	M Woolner	GBR	52										
47	B Aslett	GBR	51										
48	B Jensen	USA	51										
49	H Azzara	ARG	51										
50	J Pratt	USA	50										
51	M Varadi	HUN	49										
52	A Gey	GER	44										
53	H van Hoorn	NED	43										
54	J Korsgard	DEN	43										
55	D Blackam	AUS	42										
56	R Herzberg	ISR	42										
57	A Seifert	GER	42										
58	O Torgersen	NOR	41										
59	R Bovio	ARG	41										
59	V Ivanczikas	LTU	41										