FREE FLIGHT news

CONTENTS

FFn DIARY

WORLD CUP NOT STARTING UNTIL AT LEAST JULY1

Most events before that date are being postponed but a few may be held as open internationals. These are not shown here.

May 29-30 Salisbury Plain	BMFA London Gala. Saturday: CG, CR, CP, CE, Mini Vintage, Club Championship. Sunday: F1H, F1G, F1J, P30, H/CLG, E30, CO2. Peter Tribe, 01225 862748, thepetertribe@gmail.com
May 29-31	BMFA Nationals CANCELLED
June 10-13 Peak District or Melton Mowbray	BMFA F1E Trials (for 2021). Contact: Ian Kaynes 01252 512538 kaynes@btinternet.com
June 12-13 Salisbury Plain	BMFA Trials for 2022. F1A, F1B, F1C. Contact Phil Ball 07470177947 Phil.ball@ntlworld.com
June 20 Area Venues	BMFA 4th Area event- Team Power Day. CG, Team CP (Keil, Plugge), CE, F1B (Gutteridge), Vintage RP (Plugge), Mini Vintage, H/CLG, E30 (Plugge). Contact: Area Comp Secs.
July 4	BMFA 3rd F1E. F1E Team Selection for 2022. Contact: Ian Kaynes 01252 512538 kaynes@btinternet.com
July 8 Alvaret, Öland Island, Sweden	Swedish Cup. F1A F1B F1C F1Q F1S. World Cup event. Contact: Per Findahl, Bergvägen 8, 738 33 Norberg, Sweden, tel +46709226276 em: per.findahl@gmail.com web: www.norbergsfk.se
July 9 Alvaret, Öland Island, Sweden	Norwegian Cup. F1A F1B F1C F1Q F1S. World Cup event. Contact: Atle Klungrehaug, Jonsokveien 22, 1182 Oslo, Sweden, tel +47 906 734 78 email: aklark@online.no
July 9 Denver, USA	Centennial Cup. F1E. World Cup event. Contact: Chuck Etherington, 33946 Goldfinch Drive, Elizabeth, CO 80107, USA, tel +1 720 201 6218 etherington.freeflight@outlook.com
July 10 Alvaret, Öland Island, Sweden	Danish Summer Cup. F1A F1B F1C F1P F1Q F1S. World Cup event. Contact: Steffen Hjorth Jensen, Bognaesvej 14, 4000 Roskilde, Denmark, tel +45 2533 2105 email: steffen.hjorth.jensen@gmail.com web: http://norbergsfk.se/swedishcup
July 9-10 Chernyhiv, Ukraine	40th Antonov Cup. F1A F1B F1C F1P F1Q. World Cup event. Contact: Igor Zavgorodniy, Federation of Aeromodelling Sports of Ukraine, V.Getmana 27, 03056 Kyiv, Ukraine, tel: +380 50 242 0757, email: zivdbox@bigmir.net or infofamsu@gmail.com www.famsu.org.ua
July 10-11 Chemigiv, Ukraine	Viktor Stamov Cup - Golden Automn. F1A F1B F1C F1P F1Q. World Cup event. Contact: Igor Zavgorodny, see details for Antonov Cup above.
July 11 Area Venues	BMFA 5th Area event- Summer Mini Day. CG, CR, CP, F1H (Plugge), F1G, 1/2A (Plugge), E36, H/CLG, CO2 (Plugge). Contact: Area Comp Secs.
July 17 Tottenham, Ontario, Canada	Canada Cup. F1A F1B F1C. World Cup event. Contact: Leslie Farkas, tel: +1 905 886 6959, email: aljolie@sympatico.ca
July 18 Tottenham, Ontario, Canada	Huron Cup. F1A F1B F1C F1Q. World Cup event. Contact: Tony Mathews, tel: +1 705 854 0698, email: tmathews180@gmail.com
July 23 Krbava, Croatia	Mura Cup of Slovenia. F1A F1B F1C F1Q. World Cup event. Contact: Bogdan Lemut, tel: +386 41 210 144, email: muracup@modelarji.si web: http://muracup.modelarji.si
July 24 Korenica, Croatia	FF CRO Cup. F1A F1B F1C F1Q. World Cup event. Contact: Robert Lesko, tel +38595667676 email: Lekicro@gmail.com
July 31 - 1 August Sculthorpe	BMFA East Anglian Gala. CG, CR, CP, CE, E36, Vintage RP, Vintage G, Classic RP, Classic G, Mini Vintage, P30, H/CLG, Tailless, CO2. Contact: Mike Woodhouse michael.woodhouse1942@gmail.com tel 01603 457754

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Compiled and produced by Ian Kaynes

CIAM

2021 Championships in France postponed

The CIAM Bureau met on April 5 and May 1 to discuss future events.

At the April meeting it was decided to delay the start of the 2021 World Cup to July 1. Championships would be reviewed individually as they reached their nominal decision date, but one clarification requested from subcommittees was to specify their plans for future championships. The F1 Subcommittee agreed unanimously that the Free Flight Championships in 2022 and following years should be according to the long established 2-year sequence- World Championships for F1ABC and F1E in odd years and for F1D and F1ABP Junior in event years. The sequence had not been followed for 2021 after World Championships lost in 2020 were postponed to 2021 – reflecting our misplaced optimism in 2020 that the world would return to normal in 2021.

At the May meeting it was decided to leave the World Cup start date as July 1 but to review this at the next meeting to be held at the beginning of June. The meeting reviewed the status of Championships and noted that some NAC had asked for clarification if events were postponed or replaced by later events. This was as a consequence of the NAC considering the status of their teams selected for the original event or selection of new teams. CIAM has emphasised that it has no part national team selections, which are entirely under national control and with different procedures in each country.

The French organisers of the 2021 FF Championships had received preliminary entry forms from 22 countries, with some of these having qualifications of their attendance being conditional on improvements in the covid19 situation and the lifting of travel restrictions. This is only just over half the number of countries to be expected at a World Championship in Europe (40 in France 2013 and Hungary 2017). The number of flyers in each class was also only just over half the usual number. The French organisers declared that the championships could not be considered successful with the reduced numbers, for reasons of both the economics and the also validity without many of the countries to be expected from outside Europe. Furthermore, restrictions are likely to remain in place which would limit the usual social interaction at such an event. The preliminary entries for the Junior Championship were not so reduced, partly reflecting these events usually have a higher proportion of competitors from within Europe.

The 2023 F1ABC World Championship has been awarded to France and it will be run alongside the Junior European Championship which is also awarded to France, to maintain the linked event status of their original bid for 2021.

Bids had been submitted by Romania and Mongolia for the 2023 World Champs and by Romania and Russia for the 2023 Junior European Champs. These bids will be deferred for voting later for the 2025 championships.

The Championships in other categories that have reached their decision date have all been cancelled or postponed with the exception of Space. Their Championships were scheduled for August in Romania and current discussions are considering a proposal to postpone them 2 months to October. The FAI have published a Covid19 protocol for information to organisers: https://www.fai.org/sites/default/files/fai_protocol_for_covid-19_affected_events.pdf

The following table summarises the status and location for the events after this latest re-arrangement:

	F1ABC Senior	F1ABP Junior	F1D Senior + Junior	F1E Senior + Senior
2020	European N.Macedonia *Cancelled*	World Romania *Postponed to 2021 France*	World Romania *Postponed to 2021*	European Romania *Cancelled*
2021	World France *Postponed to 2023*	World from 2020 France *Cancelled*	World from 2020 Romania *Scheduled December 2021*	World Romania *Scheduled for August 2021*
2022	European: Awarded to N.Macedonia Asian-Oceanic Bid from Mongolia	World Awarded to Bulgaria	World Awarded to Romania	European Awarded to Romania
2023	World France *postponed from 2021*	European France *with World F1ABC*	European Sole bid from Romania	World Sole bid from Romania

CIAM Plenary meeting

During April the CIAM Technical Meetings were held remotely over several weekends. The CIAM President Antonis Papadopoulos hosted all the meetings.

The Free Flight Technical Meeting was held on the evening of April 17, attended by about 40 people – double the number at the traditional physical meetings in Lausanne. This was without the travel time and costs, although with some demanding times for people on other continents. The early start for New Zealand or Australia did not help them to attend.

Ian Kaynes F1SC Chair	GBR	Rolandas Mackus	LTU
Helmut Fuss	AUT	Ganzorig Chimed	MGL
Cenny Breeman	BEL	Byambajav Luvsanchultem	MGL
Valentin Savov	BUL	Tumur	MGL
David Loveday	CAN	Zdravko Todoroski	MKD
Jan Vosejpka	CZE	Rob Metkemeijer	NED
Peter Buchwald	DEN	Allard Van Wallene	NED
Javier Hernandez	ESP	Peter Keim	NED
Priit Leomar	EST	Narve Jensen	NOR
Jari Valo	FIN	Edward Burek	POL
Hugo Bazile Desloges	FRA	Marek Dominiak	POL
Mark Benns	GBR	Adam Krawiec	POL
John Carter	GBR	Sergei Makarov	RUS
Bernhard Schwendemann	GER	Srdjan Pelagic	SRB
Massimo Semoli	GER	Jakub Drmla	SVK
Peter Uhlig	GER	Per Findahl	SWE
Antonis Papadopoulos	GRE	Robert Hellgren	SWE
András Reé	HUN	Bengt Lindgren	SWE
Narayan Anant	IND	Chuck Etherington	USA
Gianni Cesare	ITA		

Before the meeting it is required that the Subcommittee members vote on each proposal and these votes are included on the agenda used for the meeting. The Technical Meeting worked through these agenda items in order:

a) clarification of timekeeping rule F1.1.2. This Subcommittee proposal was amended in the meeting to add a clarification to F1.2.1 by including 5 extra words:-

Competitors may act as timekeepers ***for flights of other competitors***

The meeting unanimously agreed the amended proposal

b) F1A Glider launching.

This proposal from Netherlands, Germany and Switzerland was for the controversial ban on falling down when launching gliders. This was intended as a safety measure to prevent injuries and also act as a slight reduction of performance. Against that the opponents cited freedom of choice and the ability to take precautions against injury, the difficulty of observing both the flyer and the model at moment of launch, and the effect of an unintentional trip when launching.

The anticipated discussion had been avoided in advance when, earlier that day, the proposers told me that would withdraw the proposal. This was triggered by the Subcommittee vote of 5 in favour and 10 against.

c) F1B 3.2.8 Classification

This was the Subcommittee proposal to bring the flyoff flights into line with the rounds flights by a ban winding motors before the start of the round. There were some complaints about it making the flights more of a lottery and a call for a 9 minute round instead. John Carter pointed out that the UK successfully uses a 5 minute round for domestic flyoffs. The Subcommittee had votes 11 in favour, 2 against and this was reflected in the Technical Meeting with 1 vote against and at least 9 in favour (since this gave a clear majority I did not pursue a formal vote to get the true number in favour).

d) F1.3.1, F1.4.1etc and (e) F1C characteristics.

These proposals from Poland called for Junior Championships to change from F1P to a simplified F1C and were considered together. Poland criticised F1P as being a dead end for juniors without participation in other competitions or continuing after they exceeded junior age. Also there are used F1C models without gears and variable geometry which could be used by the juniors. Views against that were that when Junior power started it is was flown with F1C and was no more popular than F1J and F1P that followed it. There was a strong view that the power class should change to electric, either F1Q or F1S. The subcommittee vote on the proposal had been 2 for and 8 against. The Technical Meeting made a similar rejection with 3 in favour, 12 against. Voting at the meeting was in accordance with the rule of one vote for each country attending, which is difficult to enforce by a show hand or voting option on Zoom. Thus to conduct a full vote for this proposal I read out each country in turn and noted their verbal vote.

f) F1D Characteristics.

This proposal from France was to allow open international organisers (not championships) of events in low ceiling heights to specify F1D be flown with half-motors. The proposal was amended to clarify that the 0.2g weight of rubber was the maximum weight allowed. The subcommittee had supported the proposal 7 for, 1 against and again the Technical Meeting voting was similar at 9 for, 2 against.

g) F1 World Cup rules

This proposal from the subcommittee was for increased bonus points for the top 3 competitors in an event. It was unanimously supported by the subcommittee and then by the technical meeting.

h) F1 World Cup rules

This proposal from the subcommittee was to relax the rule for making a flight in the first round in order to be considered for World Cup points, now it is used only in the bonus point calculation. It was unanimously supported by the subcommittee and then by the technical meeting

i) F1 World Cup rules

The proposal from France was to add the F1D and F1D Junior categories in the Free Flight World Cup, with the number of indoor events hoped to increase as a result of allowing half-motors in proposal (f).

j) Organisers guide.

This proposal from France was to dictate supervisors for the timekeeping at contests where competitors are doing the timekeeping. Apart from the confusing use of the term "self-timing" it was considered unclear where it would appear in the code and was not a popular concept. The subcommittee had opposed the proposal 4 for, 9 against and at the Technical meeting it was promised that the Subcommittee would consider what controls would be appropriate and so France withdrew the proposal.

For meetings at Lausanne the Technical Meetings all took place at the same time, preventing a single delegate from attending all of them. The remote meeting schedule had the Technical Meetings at separate times so that a delegate could attend each meeting and vote on their proposals. However, the traditional format was followed with delegates being required to vote on all proposals via a voting tool made available for the period May 1 to 30. In F1 these votes confirmed the Technical Meeting opinions:

a) timekeeping	unanimous for
c) F1B 3.2.8 Classification	28 for, 3 against
d) F1.3.1, F1.4.1etc	6 for 19 against
e) F1C characteristics	5 for 19 against
f) F1D Characteristics.	25 for 2 against
g) F1 World Cup rules	unanimous for
h) F1 World Cup rules	unanimous for
i) F1 World Cup rules	unanimous for

NEWS FROM BMFA FF TECH COMMITTEE

All correspondence re this news to the FFTC Secretary:

Stephen Philpott, 14 Durley Drive, Sutton Coldfield, B73 6QT. Tel 0121 354 4448 mob 07939 205047 srphilpott@aol.com

The FFTC held an internet virtual Zoom meeting from their homes on 28 April 2021.

2021 Substitute Nationals

The FFTC are working on a substitute for the May Free Flight Nationals. The current provisional plan consists of two weekends; one of which will be two consecutive days selected from the August Bank Holiday of 29th to 30th August and the following weekend of 4th and 5th September. The spread of events is yet to be firmly established. There are two exceptions to this in that Scale and the Bowden both of which require a hard tarmac surface will be included into the the East Anglian Gala on the weekend of 31st July and 1st August. Further details will be released as detailed planning progresses.

We would re emphasis that at present this is all very provisional and there are many hurdles to cross.

Rule Changes for 2022

The FFTC do not have any proposed rule changes for 2022. If you have any proposal changes that you would like to be considered please send details to Stephen Philpott by the end of August 2021.

First Aiders

The BMFA are organising some in house First Aid courses to be run at Buckminster. If you are interested in attending one of these courses please let us know.

PULSAR, F1S BY URS SCHALLER

From Thermiksense with thanks.

Simple class with high-tech construction.

After more than 35 years of RC electric and glider flying, in 2016 I decided to return to free flight and hang the transmitter on the famous nail. In order to bring my skills up to scratch, I built and flew 2-3 peanuts. After this training, I took up the CIAM set of rules. The "big" classes F1A/B/C were out of the question because they were too specialised and, after the long years of absence, also too complicated and buying is not my cup of tea.

Even if there is no longer a do-it-yourself rule, building it yourself is a fixed criterion and a fun factor for me. But there was still a small class of F1S or E36. I've known e-models for many years, also because I've represented the big names in Italy for 40 years, Keller, Plettenberg, Schulze, Sanyo to name just a few. So there was a little experience.

This small class is built quickly and has no complex mechanics, which makes building easier and makes flying more difficult. My first model was a "Super Pearl" to build something tried and tested. When flying this model, the first mental requirements for an own model were formed. No external batteries and other attachments and no rubber to attach the wings. For aesthetic reasons, covering with paper, but somehow moisture-proof, we usually fly in the early morning with a lot of dew.

In terms of aerodynamics, it is a rectangular wing, as you cannot make big increases of aspect ratio with the given wingspan and taper only brings extra work and weight without having any real advantages. Otherwise the classic design like the power models of the sixties. Electronics, batteries, timers and everything that goes with them should disappear in the pylon. With the wing profile, I wanted to benefit from developments over the past few years. At Slobodan Midic I found what I was looking for with the Mid309, 3% camber with 7% thickness.

An electronic timer with RDT was essential to reduce the risk of model damage when trimming,. Now I am lucky to have the manufacturer of the Sidus-Timer and the GPS-Pyxis in my area, which is why their products are used. It's fantastic how electronics make free flight easier today. You can go carefree to the performance limits, possibly exceed them, without immediately risking a new model.

Another aim of this model development was to take a closer look at the construction methods introduced in recent years with pultruded carbon profiles, balsa ribs with carbon strips, etc. Also in order to develop a certain sensitivity for these materials during construction.

The Pulsar series began in 2017. The first shape for a D-box was planned. To make it easier to insert the fibres, perforated film and suction fabric, I graphically turned the wing nose 5 °. That was not a brilliant idea as it turned out later. I divided the profile contour into 2 polylines and turned it, but the fibre part continuously bends over the entire width, the nose radius has subsequently become larger than it should be according to the coordinates. But it still does fly!

I laminated the first D-Box with the lightest fabric available to me at that time of 90 g/m^2. Since this fabric is woven very loosely, I tried to seal it with either 25 g of glass fabric or with a layer of Esaki paper. Weight of the cover was 7-8g with the dimensions 36x500 mm. A width of 25% was planned for the box. On later wings the width was reduced to 20% and the wing is still more than stiff enough. At the beginning of 2018, I received the UD from Carbonweave and the weight was radically reduced. With 2 layers of 40 g/m^2, the raw taco shells were about 5 g. I also tried it with just one layer 40 g/m^2 (3.5 g), but the ribs stick out like an emaciated cow, even if the number of half-ribs is doubled.

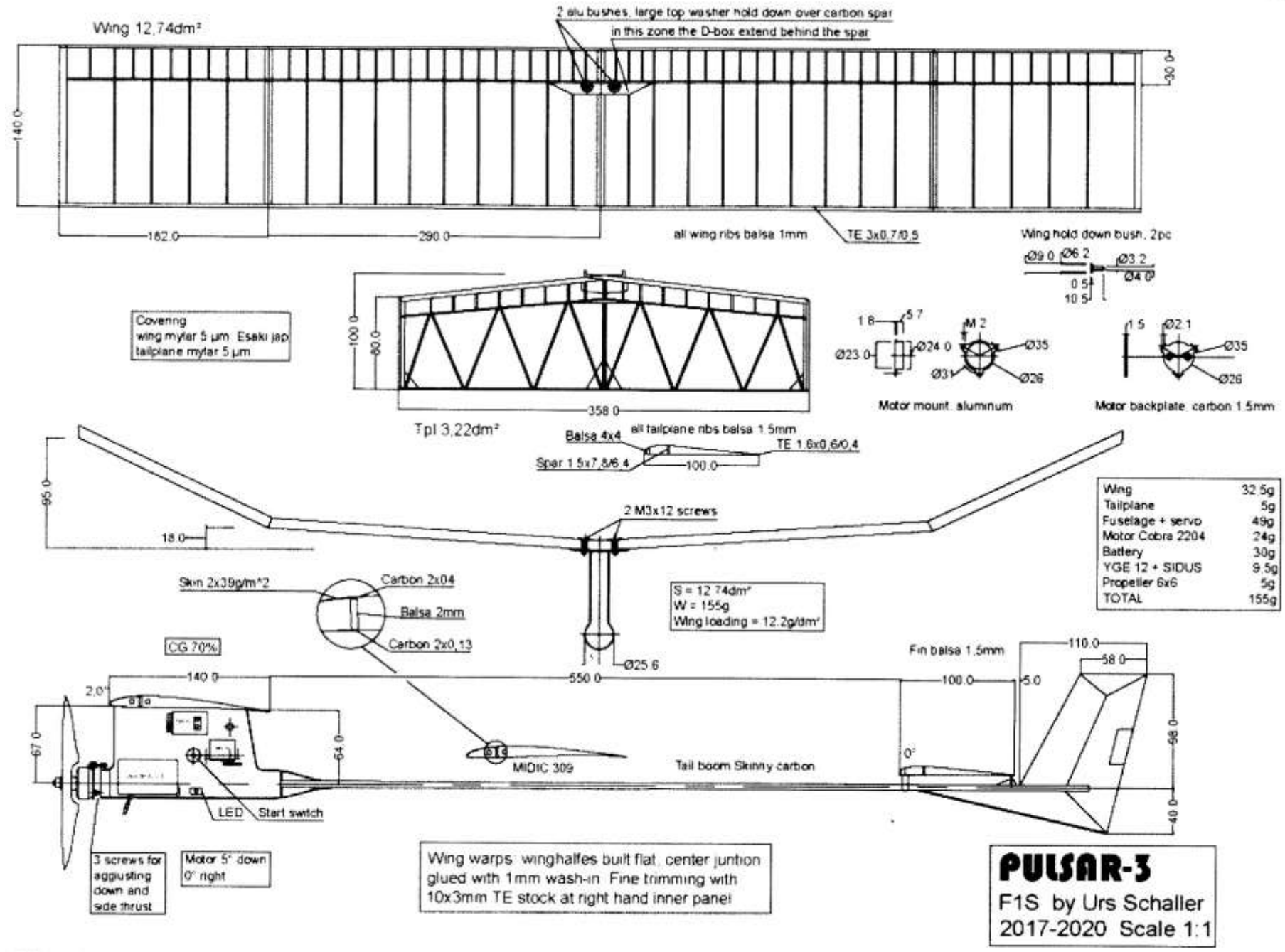
For the lamination itself. I built one-piece negative moulds and excess resin from the start sucked off with vacuum. Hence the attempt to graphically open the form. Laying in the layers is complicated and in practice only possible if all the layers are prepared on a table and the layers, including half the vacuum bag, are brought in in one go. Of course I also tried to laminate directly onto the positive form, but the thickness of the carbonweave gel is not as regular as a fabric and that leaves marks on the finished laminate. A smooth surface is definitely an aerodynamic advantage at the leading edge. To assemble the finished D-Box with the rest of the ribs and the end strip, an underside shape made of balsa was ground with the length of a half-span. A friend CNC milled the ribs for me from 6 mm aluminium. To reduce work, I have not provided any surface distortion warps. The two halves of the surface are glued in the centre, twisted by 0.8 mm, in order to achieve a little wash-in on the right wing. In the centre there is also a GRP piece made of 0.5 mm plate material as a connector in the spar, length 25 mm per side.

The spar itself was created in an evolutionary manner. The first attempt was upright 2 mm balsa with the caps made of 2x0.4 mm carbon profile, weight 5.2 mm. The next wing was made of 2x0.4 mm with a pressure belt and the lower belt, subjected to tension, was made of 2x0.13 mm, weight approx. 4 g. On the third wing, the upper strap in the tip was replaced by 2x0.13 mm material, final weight 3.4 g. The trailing edge of the first two wings is made from 3x0.7 / 0.5 mm carbon, the third from 1.6x0.6 / 0.4 mm - but has not proven itself, as it tends to warp when covering. So 3 wings were created with weights of 40.4 - 32.0 - 26.0 g.

In the first attempt, the tail unit was still rectangular with the dimensions 400x100 mm, 4 dm^2, as 30% of the wing area. Later a trapezoidal stabilizer with 25% area was made. The spar is made of 1.5 mm balsa with cap-strip strips of 1.5 x 0.12 mm, as are the ribs behind the spar. The vertical stabilizer is made of light C-grain balsa from 4 individual pieces, glued together and glued in a slot in the fuselage tube.

The pure wood-wood bonds are made with low-viscosity cyano. The wood-CFRP connections on the other hand, are all made with laminating resin and in a heating oven at 40-50° C for at least 24 hours.

Choosing the covering for the wing and tail unit was not easy. On the one hand, it should be light, resistant to moisture, coloured and visually striking so that the model can be easily seen in the sky and in the grass. Of course, one first thinks of one of the many plastic films to be found on the market such as Oracover, Monokote, Solarfilm with all their variants. But they all have this plastic look that I don't necessarily like. Having covered with paper in your youth leaves its mark! I had previously experimented with Mylar film 5 µm and found out on the occasion that other model makers stick Japanese paper (Esaki) onto it. The first attempts were promising, light with approx. 20 g/m^2 and impermeable to water and air. The best of both worlds!


Wing 12,74dm²
2 alu bushes, large top washer hold down over carbon spar
in this zone the D-box extend behind the spar
140.0
30.0
182.0
290.0
all wing ribs balsa 1mm
TE 3x0,7/0,5
Wing hold down bush, 2pc
Ø9.0
Ø6.2
Ø3.2
Ø4.0
0.5
10.5
Covering
wing mylar 5 µm Esaki jap
tailplane mylar 5 µm
100.0
80.0
358.0
Tpl 3,22dm²
1.8
5.7
M 2
Ø23.0
Ø24.0
Ø35
Ø31
Ø26
Motor mount, aluminum
1.5
Ø2.1
Ø35
Ø26
Motor backplate, carbon 1.5mm
Balsa 4x4
all tailplane ribs balsa 1.5mm
TE 1.6x0,6/0,4
Spar 1.5x7,8/6.4
100.0
95.0
18.0
2 M3x12 screws
Skin 2x39g/m*2
Carbon 2x04
Balsa 2mm
Carbon 2x0,13
Ø25.6
S = 12.74dm²
W = 155g
Wing loading = 12.2g/dm²
Wing 32.5g
Tailplane 5g
Fuselage + servo 49g
Motor Cobra 2204 24g
Battery 30g
YGE 12 + SIDUS 9.5g
Propeller 6x6 5g
TOTAL 155g
CG 70%
140.0
550.0
Fin balsa 1.5mm
110.0
58.0
100.0
5.0
2.0°
67.0
64.0
98.0
40.0
0°
MIDIC 309
Tail boom Skinny carbon
LED
Start switch
3 screws for aggiusting down and side thrust
Motor 5° down
0° right
Wing warps: winghalfes built flat, center juntion glued with 1mm wash-in. Fine trimming with 10x3mm TE stock at right hand inner panel
PULSAR-3
F1S by Urs Schaller
2017-2020 Scale 1:1

In addition, the Esaki paper can be decorated in the printer with the identification, mobile phone number and other works of art. Just check first whether the printing ink is resistant to water and acetone.

To try out the architecture of the front part of the fuselage, a balsa pylon and a carbon tube 25 mm were glued together and an attempt was made to install the hardware with controller, battery, timer and servo in it. This also allows the handling to be improved in order to avoid possible mistakes in flight operations. The Skinny (7-8g) from Avia Sport was intended as the boom, as used by most of the F1S models. For model no.2, a master model and a corresponding shape were made in order to laminate the pylon, fuselage tube and connection cone as a unit. The laminate itself in the tube is a pure laminate of UD fabric +/- 45 ° and a layer of 90 g / m2 carbon fabric, the pylon, on the other hand, is covered with UD Rohacell - UD fabric. A lot of work, but a light 10g structure as a result. Later there was also space for an altimeter, a GPS and an LED, all of which are powered by the engine battery. The battery is accessible via a small cover on the underside.

A Cobra 2203/2800 was actually intended as the motor, but after a few attempts it was replaced by a Cobra 2204. A Hobbywing 2205 was also tested with good results. Propeller SpeedCam 6x6 from Graupner, later I used a stiffer personal carbon version. Controller is a YGE 12. Strangely, these products, like others from the shortlist, disappeared from the market after a short time.

The batteries for this category are a part that needs special attention and treatment. After all, they are the most heavily used components. With my motorization, 19A flow at the start. That is a lot for the LiPo batteries in question with a capacity of 300-400 mAh, corresponding to 45-65 C. To our advantage, the current only flows for 10 seconds. Therefore, do not choose batteries according to weight, but measured according to the C-rate and the internal resistance. In flight operations, use the battery only once a day and discharge it after each session and store it at around 3.7 V.

And then came the big day of flying in and trimming. The model showed high potential from the start, but it was very volatile and you could never actually predict how the climb would end. Thanks for the RDT !!! It took almost 2 years to fix these quirks. The first problem was nose down on really fast climbs. Only when recalculating the horizontal stabilizer load at 25 m/sec did it emerge that the stabilizer tube was bent downwards. To save the fuselage, I glued a bundle of 15 boron fibres to the top and bottom of the tube. Later models now have a tail unit made of aluminium-carbon-aluminium, as is usual with F1B models. These have a greater taper and are more rigid because of the larger diameter for the same weight.

Another problem was turning around the longitudinal axis when climbing, "Dutch Roll". Only after reducing the rudder area by 10-12% was this problem resolved and a safe climb was achieved almost independently of the manual launch. Today the model normally climbs to 200-220 m in 10 seconds. At a rate of descent of approx. 0.6 m/sec that results in 360 seconds without thermal. Far too much, which is why I fly the competitions with the engine running for only 5-6 seconds. Depending on the form on the day, the transition is right or a few metres of altitude are given away.

Have fun flying F1S and hopefully this class will be flown more often in competitions soon.

Urs documented the construction of the pulsar with many photos in a blog:

https://www.hippocketaeronautics.com/hpa_forum/index.php?topic=22163.0

2021 FREE FLIGHT FORUM REPORT

To add to the mention last month, this is the cover of the Forum Report.

Copies are available from: Martin Dilly, 20, Links Road, West Wickham, Kent, BR4 OQW or by phone to: (44) + (0)20-8777-5533, or by e-mail to martindilly20@gmail.com

NOTICEBOARD

Mike Woodhouse FF Supplies mike@freeflightsupplies.co.uk

ASUKA WASHI JAPANESE TISSUE

As most free flight modellers are aware ESAKI have ceased supplying Japanese tissue. ESAKI had been the place to go to for the supply of tissue. When couple of years ago ESAKI ceased their operation, the search was on for a replacement. After much to and froing of e-mails a new product has emerged in the guise of ASUKA WASHI. This new tissue is basically the same as ESAKI but in appearance a little denser and less shiny. In the autumn of 2019, I received samples which I passed around the various flyers and all the responses I received were favourable.

I now have a supply of ASUKA WASHI. The current range of colours is limited to red, yellow, blue, orange and white. The sheet sizes are the same as ESAKI at 450mm (18") x 600mm (24") the weight is 14 grams per sq. metre whereas ESAKI was 13 GSM. The range of colours will increase as production moves forward and demand dictates. Visually the colours muted compared to ESAKI but as noted denser. The price is £1.75 per sheet plus postage.

I still have stocks of ESAKI left particularly in the colours not produced by ASUKA as well as the chequer board colours.