# FREE FLIGHT news

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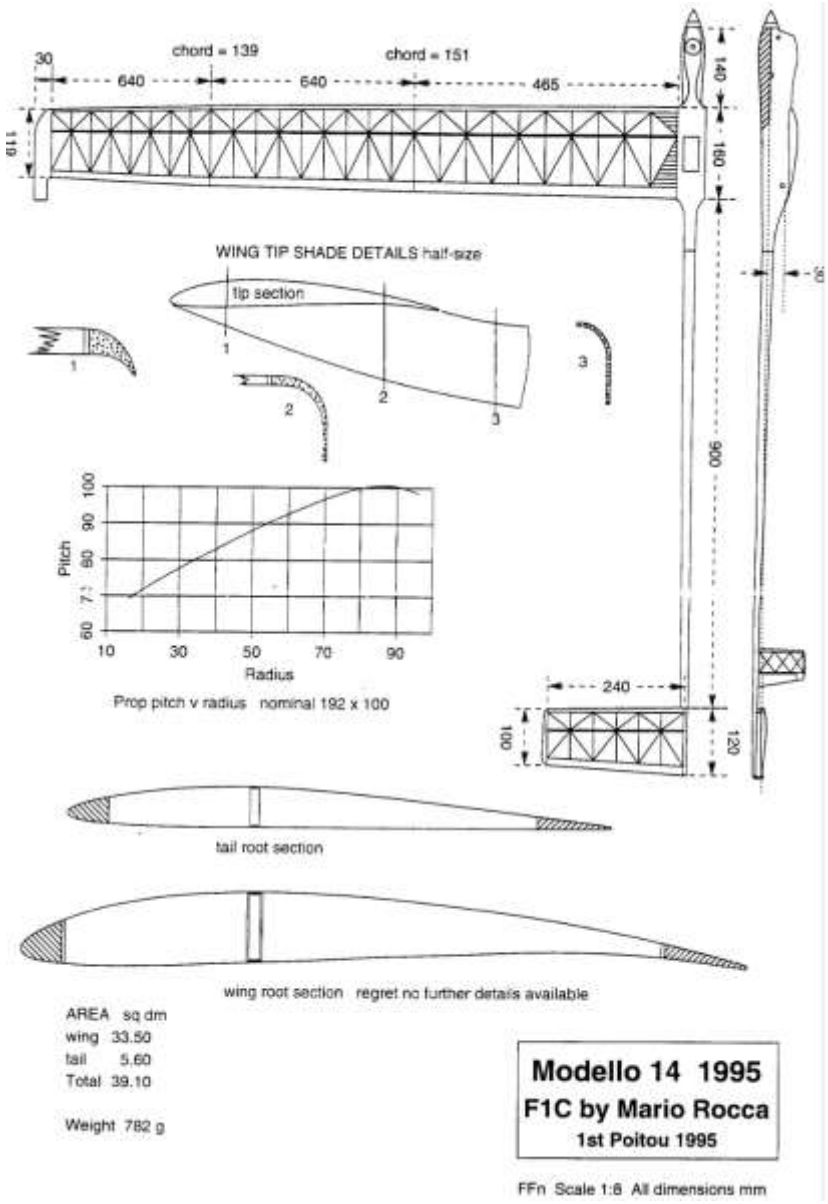
## FFn DIARY

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## CIAM CHAMPIONSHIPS

The schedule for Championships in 2021 and several in 2022 had been published. However, this is under continued review and already the first event in 2021, the F3P indoor radio aerobatics in Romania, has been moved from February to November on account of the lack of confidence that the Covid19 situation would allow the event to go ahead in February. The next Championship is the Free Flight Indoor F1D event in Romania in March. As we go to press similar discussions are underway about also delaying this event.

## CIAM COMPETITION CALENDAR

The FAI database of CIAM competitions has been updated at https://www.fai.org/page/ciam-events

As Free Flight World Cup Coordinator I have responsibility to maintain the data base of events, but now a useful facility has been added so that I can directly load events on to the FAI database. Thus the following list of events should be in close agreement with the entries on the database. For events which have been postponed from 2020 to 2021 there are two categories:

a) Those with known dates in 2021 and these appear on the database on that date

b) Those which have been postponed to 2021 but with dates not yet fixed. These are shown on the database with year 9999 and show the day and month on which they were going to be held in 2020

### Open Internationals in 2020

| | | | | |
|---|---|---|---|---|
| Poitou | FRA | Noizé | Aug 08-Aug 09 | F1A B C Q |
| Mem. Izet Kurtalic | BIH | Mostar | Aug 08 | F1A B C H |
| Mostar Cup | BIH | Mostar | Aug 09 | F1A B C Q |
| Louis Dupuis 2 Min | FRA | St Jean de Sauves | Aug 10-Aug 11 | F1G H J S |
| Hispano-Francia | FRA | St Jean de Sauves | Aug 10-Aug 11 | F1A B C Q |
| 16th Poitou Charentes F1E | FRA | Tourtenay | Sep 12 | F1E |
| Poitou Moncontour F1E | FRA | Tourtenay | Sep 13 | F1E |
| Trofeo citta di Capannori | ITA | Padule di Bientina | Oct 03-Oct 04 | F1A B C Q |

### Events in 2020 to be decided

| | | | | |
|---|---|---|---|---|
| Sierra Cup | USA | Lost Hills | Oct 08-Oct 12 | F1A B C E P Q G H J S |
| Kotuku World Cup of NZ | USA | Lost Hills | Oct 09-Oct 12 | F1A B C PE Q |
| Krka Cup | SLO | Sentjernej, Novo mesto | Oct 23-Oct 25 | F1A B C |
| F1N Indoor Open Darda | CRO | Osijek | Nov 21-Nov 21 | F1N |
| Carpatian Cup | POL | Jedicze | Nov 22-Nov 22 | F1N |
| Hanukha Open | ISR | Urim | Dec 11-Dec 12 | F1A B C P Q |
| Negev Open | ISR | Urim | Dec 13-Dec 14 | F1A B C P Q |

### Events postponed to specific dates in 2021

### World Cup events

| | | | | |
|---|---|---|---|---|
| World Cup Rana | CZE | Raná u Loun | Mar 20 | F1E |
| World Cup Rana | CZE | Raná u Loun | Mar 21 | F1E |
| Harghita Cup | ROU | Deva | Apr 10 | F1A B C P Q H |
| Budapest Cup of Hungary | ROU | Deva | Apr 11 | F1A B C Q H |
| Otto Kuttler Cup | GER | Oberkotzau | Apr 17 | F1E |
| Fohrlberg Cup | GER | Oberkotzau | Apr 18 | F1E |
| Belaya Rus Cup | RUS | Smolensk | May 08 | F1A B C P Q H |
| Salonta Cup | ROU | Salonta | May 08 | F1A B C Q H |
| Szabo Miklos Memorial | ROU | Salonta | May 09 | F1A B C Q H |
| Gamaun Cup | RUS | Smolensk | May 09 | F1A B C P Q H |
| 5th Trofeo Gar Rovereto | ITA | Monti Lessini | Jun 05 | F1E |
| 10 VOLARE LESSINI | ITA | Monti Lessini | Jun 06 | F1E |
| 53rd Memorial Djordje Zigic | SRB | Aradac – Zrenjanin | Jun 12 | F1A B C |
| Free Flight Latvia Cup | UKR | Blagodatnoe, Kharkov | Jun 25-27 | F1A B C P Q |
| Zlatibor Trophy Cup | SRB | Zlatibor | Jun 26-Jun 26 | F1E |
| Black Stork Cup of Latvia | UKR | Blagodatnoe, Kharkov | Jun 26-28 | F1A B C P Q |
| Zlatibor Cup | SRB | Zlatibor | Jun 27-Jun 27 | F1E |
| Norwegian Cup | SWE | Alvaret, Öland Island | Jul 04 | F1A B C Q S |
| Memorial Popa Cringu | ROU | Turda | Jul 16 | F1E |
| Turda Cup | ROU | Turda | Jul 21-Jul 21 | F1E |
| US Free Flight Nationals | USA | Muncie, Indiana | Jul 26-28 | F1A B C Q |
| Governor's Cup | POL | Toszek | Aug 20 | F1E |
| Toszek Cup | POL | Toszek | Aug 21 | F1E |
| The Friendship Cup of Ukraine | POL | Toszek | Aug 22 | F1E |
| Smeringai Memorial Cup | SVK | Liptovsky Mikulas | Aug 28 | F1E |
| Liptovsky Mikulas Cup | SVK | Liptovsky Mikulas | Aug 29 | F1E |
| South Bohemian Cup | CZE | Vsechov | Sep 18 | F1A B C |
| West Bohemian World Cup | CZE | Vsechov | Sep 19 | F1A B C |
| Hogo Cup | SVK | Zabokreky nad Nitrou | Sep 25 | F1A B C H |
| Zabokreky Cup | SVK | Zabokreky nad Nitrou | Sep 26 | F1A B C H |
| Prilep Cup - Trophy of Prilep | MKD | Prilep | Oct 02 | F1A B C P Q |
| Macedonia World Cup | MKD | Prilep | Oct 03 | F1A B C P Q |
| Eurofly | SUI | Mühlenthurnen | Oct 30-Oct 31 | F1A B C Q G |

### Open International

| | | | | |
|---|---|---|---|---|
| Otto Hints Memorial | ROU | Slanic Prahova | Mar 20- 21 | F1D |

**Events postponed to 2021, dates not fixed (in order of dates planned for 2020)**

**World Cup events**

| | | | |
|---|---|---|---|
| Kar-Tek Cup Pieter de Boer Mem | POL | Kierz | F1A B C Q |
| SPZG Cup.Antoon van Eldik Mem | POL | Kietrz | F1A B C Q |
| Coppa Volo Libero | ITA | Padule di Bientina | F1A B C Q |
| Widgiewa Cup | AUS | Narrandera | F1A B C |
| Australian FF Championships | AUS | Narrandera | F1A B C |
| Elbrus Cup | RUS | Nalchik | F1A B C P |
| Naloev Cup | RUS | Nalchik | F1A B C P |
| Southern Cross Cup | AUS | West Wyalong | F1A B C |
| Mendoza Cup | ARG | Mendoza | F1A B C Q |
| Poland Cup - Gonzo Cup | POL | Ulez – Podlodowo | F1A B C Q |
| Condor Cup | ARG | Mendoza | F1A B C Q |
| Crosno Cup | POL | Ulez – Podlodowo | F1A B C Q |
| Almaty Cup | RUS | Samara | F1A B C |
| Jutland Heath Cup | DEN | Viborg | F1A B Q S |
| 37th Srem Cup | SRB | Aradac – Zrenjanin | F1A B C Q H |
| Istanbul Free Flight Cup | TUR | Vize – Kirklareli | F1A B C |
| Swedish Cup | SWE | Alvaret, Öland Island | F1A B C Q S |
| Danish Cup | SWE | Alvaret, Öland Island | F1A B C P Q |
| Mura Cup of Slovenia | CRO | Krbava | F1A B C Q |
| Canada Cup | CAN | Tottenham | F1A B C |
| Huron Cup | CAN | Tottenham | F1A B C Q |
| 51st Eifelpokal | GER | Zulpich | F1A B C Q |
| Stonehenge Cup | GBR | Salisbury Plain | F1A B C P Q |
| Equinox Cup | GBR | Salisbury Plain | F1A B C P Q |
| Prista Cup | BUL | Valchitran | F1A B C Q P H |
| Bulgaria Cup | BUL | Valchitran | F1A B C Q P H |
| Prista Cup F1E | BUL | Alekovo | F1E |
| Bulgaria Cup F1E | BUL | Alekovo | F1E |
| Philippe Lepage | FRA | Arzay | F1A B C Q |
| Anatolian FF Cup | TUR | Ankara Golbasi | F1A B C |

**Open Internationals**

| | | | |
|---|---|---|---|
| Morava Cup | SRB | Aradac – Zrenjanin | F1A B C Q H |
| Belgrade Fair Cup | SRB | Belgrade | F1D |

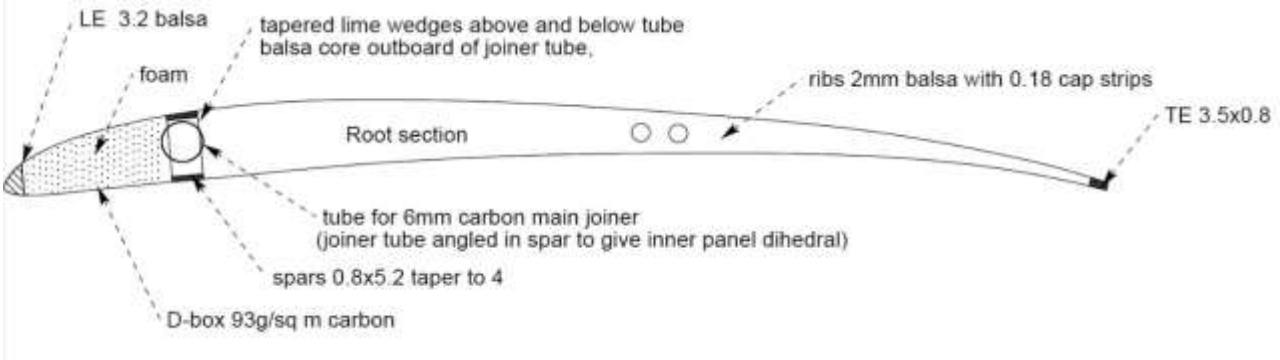
## DIHEDRAL

Ian Kaynes

My article in FFn last month produced some interest and some reactions on “why bother?”, to whom the answer is difficult to quantify but mainly a feeling that it must be more efficient aerodynamically than a sudden dihedral change.

Now to describe some of the building process. I used my standard wing construction (this is the root section of model 203):-

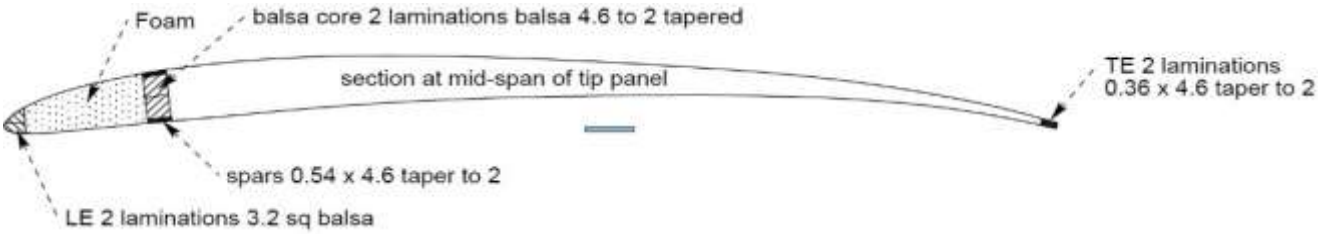
The Dbox foam core is hot wired from blue foam to a width greater than that required, going back to just behind the rear of the spar. This means that the removed upper and lower foam pieces can be used as a mould when covering the completed Dbox assembly. The actual foam core is then cut to the required chord and the balsa leading edge added and shaped. . The spar is then assembled with the balsa core epoxied to the lower spar, the height of the balsa then adjusted to exactly fit the foam core and the upper spar added. Any joiner tubes, at either root or dihedral joint, are fitted and the completed spar bound with Kevlar thread, then stuck to the foam core.



A piece of carbon cloth is cut to the required span and wide enough to wrap round from the rear of the upper spar, over the leading edge and back to the rear of lower spar. With the cloth placed on a board the Dbox assembly is sprayed with photomount and placed on one side of the carbon cloth then rolled round the leading edge to stick the cloth to the other surface. Epoxy applied, covered with polythene, positioned in the upper and lower moulds and clamped up. When completed the rear edges of the cloth are cut back to the rear spar face with a knife, taking great care to avoid cutting the Kevlar thread binding on the rear face of the spar.

The remainder of the wing is added, working on a foam base shaped to the required lower surface contours including required warps. The base is covered by a plan of the wing plotted on A4 transparency sheets taped together (just turn the plan over to get the plan of the opposite side of a tapered wing). The ribs are made by slicing a shaped balsa block covered with carbon.

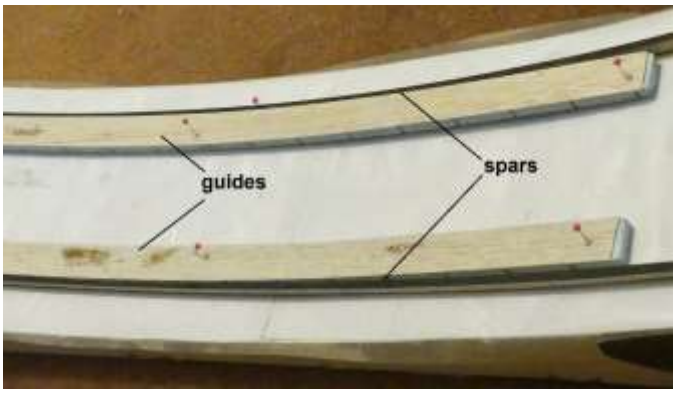
When coming to apply this technique to building a curved wing a number of new features arise. First I built a curved E36 wing to develop techniques. It was simplified in that the wing section was flat bottom but otherwise it allowed me to explore construction on a small wing. It turned out quite successfully, even if a little overweight, so now it was time to move to the much larger F1E outer panel with this section:-




The carbon spars used were 0.54 carbon tapering from 4.6 to 2. over the 800 length. The spar core was made from joining a 10mm high strip of 1/8" balsa and 1/16" balsa then tapering the width to fit the spars. To make the core more ready to adopt a curved shape it was then sliced into two with a lengthwise cut at mid-height and then stuck back together pinned to the curved board.

When gluing the carbon spars to the balsa core I normally place the assembly on a flat board with metal bars beside to ensure the spars are straight. This gave an immediate problem for curved spars because ¼" metal bars don't bend that easily. The solution I developed was to cut some 800mm strips of foam (about 10x25 cross section) and face them with balsa above and below glued to the foam with the strip on the curved board, I ensured they were straight by doing this on the edge of the curved board and pushing them against a vertical board beside the edge of the curved board.

These strips were used as straight guides when the lower spar was epoxied to the core as shown in the next photo. After the core height was trimmed the upper spar epoxied on, resulting in a rigid curved spar.




The foam parts of the Dbox and the building base are flexible enough to have no problem with the curvature, but the Dbox leading edge was made from two pieces of 1/8" square balsa stuck together for the curvature then glued to the Dbox core and shaped. The Dbox was completed by my normal method, although rather more difficult to wrap the carbon cloth round the curved Dbox.

The other component that I was reluctant to use in flat form was the trailing edge. However, Free Flight Supplies has some carbon spars tapering from 5 to 2 width and only 0.36 thick. I took two of these nice straight spars and epoxied them together on the curved board to get a precisely curved trailing edge.

The lower surface foam mould readily bent to the curved shape but then I found a problem which had not arisen on the flat-bottom E36 test wing. The transparency plan was reluctant to adopt the double curvature for the camber and spanwise curve. Applying some heat improved it and the usual few pins were then adequate to hold it down.

Completed mass of each tip panel structure was 44g and 54g when covered with mylar on the lower surface and Icarex on upper surfaces. The flat inner panel mass was 56g structure and 67g covered. The 121g total for one wing is about 20 or 30g more than my average models, but with an extra 9 sq dm area this is not a penalty.

*completed model 203*

## BOEING 747

British Airways have announced that their Boeing 747 fleet will not fly again. Earlier this year they had been the largest operator of 747 in passenger service and had planned to keep them flying until 2024 if Covid19 had not intervened. What has 747 to do with free flight? Its introduction in the 1970s dramatically changed the economics of long haul flying with the first benefit for the Taft World Champs in 1979. Much later as the World Cup developed there was the more dramatic effect of the economics of going to Lost Hills. My personal soft spot the aircraft results from 85 flights (750 hours) in it – about a quarter for work (including inaugural 747-400 flight to Hong Kong when overnight the drinking water froze) and most of the remainder were free flight related.

## A VIEW ON WORLD CHAMPIONSHIPS

By Gary Pope

From Free Flight Down Under actrain@ozemail.com.au

### Learning from World Champs – 3 elements

1. Observation by Mike Pettigrew & Vin Morgan competing in a world Championships is like flying in seven 15 minute fly-offs timed to occur within the same hourly time window in a 8 hour day. However we do most of our flying in non WC competitions that have seven one hour rounds with effectively a whole hour to get ready, pick lift, launch, recover the model & then get ready for the next round. This is a lot of time to get ready, pick lift, etc. We simply don't have this much time at the World Champs. As noted World Champs are really a sequence of seven 15 minute fly –offs. The time window for preparation, lift picking and overcoming the vicissitudes of modelling life is very small. I think it would be valuable to practice for WC's in the same way that we fly at WC's. We can do this;

a) before World Champs and

b) at World Champs

2. Single Focus – focus only on the next flight. Goal for next flight is a max – no less and NO MORE than a max no matter what the conditions. There is no point in searching for that magic flight in practice. The biggest challenge at WC's is to make the fly-offs. This is especially important for the Team result. Our focus should always be maxing out on the next flight we make, no matter what the conditions are like.

3. Flapping seems to work on marginal flights – could be the difference between a 170 second flight and a 180 second flight. Flapping should be part of our normal practice & we should be ready to spring into action at each flight, be it practice or WC's.

### Practice Format to embrace & before from these three learnings

- Practice flights within a 15 minute window. Start/finish times called by the team with a hooter/klaxon.
- No less than practice 7 flights in a practice day.
- Move your kit – move it 3 times in a day on practice day. We all know it is drudgery but we may do better in WC rounds if we actually practice it so that it becomes routine.
- On Practice day use only your kit that will be used by you in the World Champs – no tables unless you will use one at the WC's, no shade unless you will use one at the WC's, etc.
- Base Camp – need cover from sun, wind & rain. Must set it up on Practice days. Must set up the same at WC's.
- Flapping – a must for marginal flights. Need to practice this on Practice Days.
- Practice should be a Team Practice with all aspects of World Champs practiced beforehand – this means that flyers, managers & helpers should all participate in practice as if it were game day !

## NOTICEBOARD

CARBON BOOMS FOR HAND LAUNCHED GLIDERS

If you need tapered carbon tubes for HLG booms I may have what you want. As supplied they are 99cm long, taper from 5.2mm to 2mm and weigh 6.4gm. As a rough test a 58cm length, suitable for a Yashinskiy type of model, weighs 3gm after a little application of wet-and-dry paper (used wet, of course) and it looks as if there's quite a bit more that can come off. The thin end that's left is good for a catapult glider.

Price is £7.00. In normal times I'd sell direct at contests, but postage and packing would be extra, depending on how many you need. Contact Martin Dilly at 0208 7775533 or e-mail martindilly20@gmail.com to order.

## TRIMMING LOCKED DOWN POWER MODELS

By Chuck Etherington from NFFS Digest *(the title has no relationship to Covid19 lockdown but it seemed appropriate, as well as interesting)*

As the late great Bill Gieskieng once told me, "Trimming auto surface power models is easy, it's the locked down models that are the most challenging."

One day at the flying field I was watching some power models and noticed that at least one of them was overelevated and doing horizontal loops about every third flight. Another flyer asked him, "Why don't you use less decalage (incidence difference between the wing and tail)?" The flyer replied that if he did that it would glide too fast and might dive. So I suggested trimming the climb and then moving the center of gravity (C.G.) aft to re-establish the glide. The flyer responded with, "Oh, I never thought of moving the C.G." I was surprised by that response from this very experienced power flyer. So I thought about it and decided a short article might be useful in case there were others struggling in the same way.

So what makes auto-surface models easier to trim? The adjustments for the climb phase of the flight can be isolated from the glide phase. Since both the stab and rudder change incidence during the flight, the climb can be trimmed without affecting the glide and vice versa. But with locked down models every stab incidence change and rudder adjustment affects both climb and glide. Most people fly with an aft C.G. and try to find a compromise position for the stab and rudder. That often leads to overly loopy power patterns or very straight patterns with poor transition and recovery. So the obvious question is, "How do you isolate the glide phase from the climb when the stab and rudder remain fixed? The answer is CG and wing tilt.

C.G.: First the model's climb is trimmed with stab and rudder adjustments. The glide is ignored and a quick DT is used at the top of the power pattern. Once the climb is set, the glide can be addressed by moving the C.G. Obviously if the C.G. is too far forward, weight can be added to the very back of the fuselage. But if the C.G. is too far aft, firewall spacers can be added to move the engine/motor forward, increasing the moment arm forward of the CG. This will have very little effect on the climb.

Wing tilt: With the rudder adjusted for climb, the glide circle may not be ideal. Typically glide circle on an AMA power model is achieved with built-in stab tilt. However, with most three-point stab mounts further tilting of the stab will change the incidence and ruin the climb trim. But wing platforms are usually rectangular which enables one side to be shimmed with no change to the decalage. The difference between the tilt of the wing and tail will have exactly the same effect as traditional built-in tail tilt.

Further changes to climb trim will obviously also affect the glide and require further glide adjustment, but this method at least enables glide trimming to be isolated from climb trimming and fewer compromises are required.

## FREE FLIGHT FORUM

It is intended to hold the thirty-sixth BMFA Free Flight Forum on Sunday, Nov. 15th, the day after the AGM, at the National Centre at Buckminster, starting at 10.00.

This year's Forum depends on several things. The COVID-19 situation in November is unknown, and at present we need at least six more papers to make a viable Forum.

Because of that it is important that you check on the BMFA website news page: https://bmfa.org/News/News-Page before travelling. The decision will be made and announced by November 1st, so do make sure to check.

You'll need to bring your own lunch and the finish will be around 5 p.m. The cost for the session is just £10, with proceeds going towards the expenses of the teams that represent us at World and European F/F Championships.

Pre-booking will ensure that you get a seat, so send your cheque, payable to 'BMFA F/F Team Support', to the BMFA office at 31, St. Andrews Road, Leicester LE2 8RE.

Meanwhile, please think what you can offer by way of a presentation that might be of interest to fellow free-flighters, whether Vintage, scale, indoor, theory, practical, structures, aerodynamics, trimming, retrieving, thermal detection or how-to-do-it and contact Martin Dilly at martindilly20@gmail.com with your flood of offers.

## FFN

Apologies to the readers of the paper FFn that some of the pages were collated out of order in the July FFn, At least having only 6 pages should have made it easy to sort out.

## CAPRICE

The CIAM President Antonis Papadopoulos took on a free flight project during lockdown, building a Caprice. There was some discussion of converting it to electric powered radio control, but he has stayed with the original form and pure free flight. This is probably the first free flight activity by a CIAM President since Sandy Pimenoff' was in the post. Proof that the structure is now complete is this photo: