Fédération Aéronautique Internationale

Agenda

of the Plenary Meeting of the
FAI Aeromodelling Commission

To be held in Lausanne, Switzerland
on 8 & 9 April 2016

Issue 1.1

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AGENDA
CIAM PLENARY MEETING 2016

to be held in the Mövenpick Hotel - Lausanne (Switzerland)
on Friday 8 April and Saturday 9 April 2016, at 09:15

1. PLENARY MEETING SCHEDULE AND TECHNICAL MEETINGS

According to the rules, and after confirmation at the 2015 CIAM December Bureau Meeting by the relevant Subcommittee Chairmen, the following scheduled Technical Meetings will be held: F2, F3FJ, F4, F5, Space Models and Education. Interim FPV Technical Meeting will be held.

The Technical Meetings will take place in the meeting rooms and in the Auditorium of the Mövenpick Hotel, and other venues that may be available to the CIAM.

2. DECLARATION OF CONFLICTS OF INTEREST (ANNEX 1a)

Declarations, according to the FAI Code of Ethics will be received.

3. PRESENTATION IN MEMORIAM

4. MINUTES OF THE APRIL 2015 BUREAU & PLENARY MEETINGS, AND OF THE DECEMBER 2015 BUREAU MEETING

4.1. **2015 April Bureau**
- 4.1.1. Corrections
- 4.1.2. Approval
- 4.1.3. Matters Arising

4.2. **2015 Plenary**
- 4.2.1. Corrections
- 4.2.2. Approval
- 4.2.3. Matters Arising.

4.3. **2015 December Bureau**
- 4.3.1. Corrections
- 4.3.2. Approval
- 4.3.3. Matters Arising

5. APRIL 2016 BUREAU MEETING DECISIONS

Distribution and comments of the April 2016 Bureau Meeting decisions.

6. NOMINATION OF BUREAU OFFICERS AND SUBCOMMITTEE CHAIRMEN (ANNEX 1b)

6.1. **CIAM Officers**

President
1st Vice President
2nd Vice President
3rd Vice President
Secretary
Technical Secretary

Note. The nomination form will be distributed together with the agenda. The Delegate or the Alternate Delegate will have to complete the form (Annex 1b) in advance and submit it, preferably during the registration period, and before leaving the auditorium for the various Technical Meetings.

6.2. **Subcommittee Chairmen to be elected**

F2 Control Line
F4 RC Scale
F5 RC Electric
F7 RC Aerostats
S Space Models
Education

6.3. **Subcommittee Chairmen to be confirmed**

F1 Free Flight
F3 RC Aerobatics
F3 RC Soaring
F3 RC Helicopter
F3 RC Pylon Racing

7. REPORTS

7.1. ***2015 FAI General Conference, by the FAI***

7.2. **CIAM Bureau report on its activity since the last Plenary, by CIAM President, Antonis Papadopoulos**

- ASC Presidents meetings May and October 2015
- CASI meeting October 2015
- Bureau activities

7.3. **FAI World Air Games Dubai 2015.**

- CIAM participation and evaluation

7.4. **2015 FAI World and Continental Championships, Jury Chairmen (ANNEX 2)**

7.4.1. 2015 FAI F1 Seniors World Championships for Free Flight Model Aircraft. Mongolia. Ian Kaynes

7.4.2. 2015 FAI F1E World Championships for Model Gliders. Serbia. Wilhelm Kamp

7.4.3. 2015 FAI F3A World Championships for R/C Aerobatic Model Aircraft. Switzerland. Michael Ramel

7.4.4. 2015 FAI F3B World Championships for Model Gliders. Netherlands. Tomas Bartovsky

7.4.5. 2015 FAI F3 World Championships for Model Helicopters. Austria. Dag Eckhoff

7.4.6. 2015 FAI F3D World Championships for Pylon Racing Model Aircraft. Czech Republic. Andras Ree

7.4.7. 2015 FAI F3K World Championships for Model Gliders. Croatia. Tomas Bartovsky

7.4.8. 2015 FAI F3P World Championships for Indoor Aerobatic Model Aircraft. Poland. Michael Ramel

7.4.9. 2015 FAI F1 Juniors European Championships for Free Flight Model Aircraft. Romania. Gerhard Woebbeking

7.4.10. 2015 FAI F1D European Championships for Indoor Model Aircraft. Romania. Wilhelm Kamp

7.4.11. 2015 FAI F2 European Championships for Control Line Model Aircraft. Bulgaria. Jo Halman

7.4.12. 2015 FAI F3J European Championships for Model Gliders. Bulgaria. Antonis Papadopoulos

7.4.13. 2015 FAI S European Championships for Space Models. Ukraine. Gerhard Woebbeking

7.5. **2015 Sporting Code Section 4: CIAM Technical Secretary, Mr Kevin Dodd (ANNEX 3)**

7.6. **2015 Subcommittee Chairmen (ANNEX 3)**

7.6.1. Free Flight: Ian Kaynes
7.6.2. Control Line: Peter Halman
7.6.3. R/C Aerobatics: Michael Ramel
7.6.4. R/C Gliders: Tomas Bartovsky
7.6.5. R/C Helicopters: Dag Eckhoff
7.6.6. R/C Pylon: Rob Metkemeijer
7.6.7. Scale: Johan Ehlers (acting chairman)
7.6.8. R/C Electric: Emil Giezendanner
7.6.9. Aerostats: Johannes Eissing
7.6.10. Space Models: Srdjan Pelagic
7.6.11. Education: Gerhard Woebbeking

7.7. **2015 World Cups, by World Cup Coordinators (ANNEX 4)**

7.7.1. Free Flight: Ian Kaynes
7.7.2. Control Line: Jo Halman
7.7.3. F3A R/C Aerobatics: Rob Romijn
7.7.4. R/C Thermal Soaring and Duration Gliders World Cup: Ralf Decker
7.7.5. R/C Slope Soaring World Cup: Andrè Austin
7.7.6. R/C Thermal Duration Gliders World Cup: Sotir Lazarkov
7.7.7. R/C Hand Launch Gliders World Cup: Friedman Richter
7.7.8. R/C Electric Motor World Cups: Emil Giezendanner
7.7.9. Space Models World Cup: Srdjan Pelagic

7.8. **2015 Trophy Report, by CIAM Secretary, Massimo Semoli (ANNEX 5)**

7.9. **Aeromodelling Fund- Budget 2016, by the Treasurer, Andras Ree (ANNEX 3)**

7.10. **CIAM Flyer, by the Editor, Emil Giezendanner (ANNEX 3)**

7.11. **EDIC WG report, by Chairman, Paul Newell (ANNEX 3)**

7.12. **CIAM and Drones report, by Chairman, Bruno Delor (ANNEX 3)**

8. PRESENTATION OF 2015 FAI WORLD CHAMPIONSHIPS MEDALS COUNT PER NATION

9. PRESENTATION OF 2015 WORLD CUP AWARDS CEREMONY

INVITATION TO THE PRESENTATION CEREMONY FOR

The 2015 World Cup awards for classes F1A, F1A junior, F1B, F1B junior, F1C, F1E, F1E junior, F1P junior, F1Q, F2A, F2B, F2C, F2D, F3A, F3B, F3F, F3K, F3J, F5B, F5J, S4A, S6A, S7, S8E/P and S9A

will be held on Friday, 8 April 2016, at 16.30 in the Mövenpick Hotel.

10. PLENARY MEETING VOTING PROCEDURE

Confirmation of the voting procedure for the Plenary Meeting.

11. SCHOLARSHIP SELECTION APPROVAL (ANNEX 3 and 8)

- Christian WINKER (Germany)
- Michail LOMOV (Russia)
- Taron MALKHASYAN (USA)
- Konrad ZUROWSKI (Poland)

12. NOMINATIONS FOR FAI-CIAM AWARDS (ANNEX 6)

Alphonse Penaud Diploma

- Ivan TREGER (Slovakia)
- Dimche VELKOSKI (Former Yugoslav Republic Of Macedonia)

Andrei Tupolev Diploma

- Ondrej HACKER (Czech Republic)

Antonov Diploma

- No Candidates

Frank Ehling Diploma

- John JACOMB (United Kingdom)
- National Association of Rocketry (USA)

Andrei Tupolev Medal

- Igor BURGER (Slovakia)

FAI Aeromodelling Gold Medal

- Dag ECKHOFF (Norway)
- Miroslav SULC (Slovakia)
- Bogdan WIERZBA (Poland)
- Stefan WOLF (Germany)

13. OPEN FORUM

CIAM Bureau decided to continue this initiative. For this year, the Open forum subjects will be “Live Scoring Systems” and Drones Activities Development by CIAM.

You will receive additional information regarding the Open Forum Session as soon as it is available.

14. SPORTING CODE PROPOSALS

The Sporting Code proposals begin overleaf.

14. SPORTING CODE PROPOSALS.

The Agenda contains all the proposals received by the FAI Office according to rules A.6 and A.7.

Additions in proposals are shown as **bold, underlined**, deletions as ~~strikethrough~~ and instructions as *italic*.

Bureau proposals now appear in the appropriate rule section of item 14.

Each section begins on a new page.

14.1 Special Proposals to Plenary

a) CIAM General Rules **Bureau**

Replace Volume ABR Sections 4A (CIAM Internal Regulations), 4B (General Rules for International Contests), and 4C Part 1 (General Regulations for Model Aircraft) with the restructured and renamed Volume – CIAM General Rules 2017 as shown in ***Annex 7f****.*

Note (i): Volume ABR – Section 4C Part 2 (Records) will be published as a separate volume.

Note (ii): Refer to the accompanying PowerPoint (PDF) which is located at Annex 7g and the List of Amendments which is located at Annex 7f (page 6) for explanations of specific changes to rules from Volume ABR Edition 2016.

Note (iii): Refer to Annex 7h for a list of the parts of Volume ABR 2016 which will not be included in General Rules 2017 and will have to be included in other Volumes (F1, F2, SM) 2017 editions.

Note (iv): Annex 7i is the List of Forms and Documents which are referred to in the new Volume – CIAM General Rules and will be downloadable from the Documents section of the CIAM website.

b) Numbering System **F1 Subcommittee**
Applies to all Volumes

Change the numbering system in the technical volumes to replace the leading numbers of the current numeric system N.x.x by the class abbreviation.

Reason: The numbers used in the Sporting Code originally related to its position as part numbers of the single book which contained the Sporting Code. Since the Code now appears only as separate volumes it is redundant to continue the use of the numbering system starting with 3 and higher for specific classes.

Instead it is proposed that all paragraphs in volume F1 start with “F1” , those in volume F2 start with”F2”, etc. This serves to identify the volume within the current format of the Sporting Code. Furthermore by adding the class letter, the specification for each class can be considered alone with completely self-explanatory evidence of the class to which the rules apply. Any cross-references to rules (for example from Annexes) are also made more comprehensible. You do not need to make the mental conversions such as “3.4 applies to F1D” or “5.2 applies to

F3D" since it is obvious which class a rule covers. When rule changes are being considered there is also greater clarity in knowing which class is affected by a specific paragraph.

To give some examples:

In Volume F1 Free Flight paragraph 3.4.7 in the F1D rules becomes F1D.7.

In Volume F2 Control Line paragraph 4.3.6 in the F2C rules becomes F2C.6.

In Volume F5 Electric paragraph 5.5.4.7 in the F5B rules becomes F5B.7

In Volume F4 Scale paragraph 6.3.4 in the F4C rules becomes F4C.6

Some technical volumes start with a general section applicable to all classes within the volume, this would be numbered with the basic volume letters, e.g. F4. Currently the different technical volumes use a variety of schemes to number the annexes, these can be transferred by the inclusion of the volume indicator to the number.

c) F3U (Provisional class) – RC Multi-Rotor FPV Racing **Bureau**

Approval of the Provisional class and the sporting code as shown in **Annex 7.j**

Volume ABR, Section 4A, CIAM Internal Regulations begins overleaf

Technical Secretary's Note: If approved, the following proposed changes to the Volume ABR 2015 will be incorporated into the new Volume CIAM – General Rules for 2017 (except for Section 4C – Part Two – Records).

Therefore, the proposals should be considered with reference to the appropriate section in that Volume – please refer to Annex 7f.

14.2 Volume ABR, Section 4A

(CIAM Internal Regulations – begins on page 15 (2015 Edition))

a) A.7.1 a) Timetable for proposals to the CIAM Plenary Meeting and Agenda for this Meeting. **Canada**

Amend the paragraph as follows:

A.7.1. a) All proposals from Subcommittees and NACs for the Plenary Meeting must be submitted through the FAI automatic submission process in the format described in A.6.1 g) ~~between 1st August and 15th November~~ **by July 31st**.of the year immediately preceding the Plenary Meeting at which the proposals may be considered within the appropriate two-year rule cycle. **The submissions to be distributed by CIAM to the NACs who will distribute the documents to the interest groups of their organisation. The NACs would collect the replies and send them to CIAM by November 15th** of the year immediately preceding the Plenary Meeting at which the proposals may be considered within the appropriate two-year rule cycle.

Reason: The above proposed process of submission of rule changes would assist the FF subcommittee and would allow members of the category who will be affected to voice their opinion. This will result in fairer and more constructive changes for the sport.

b) A.15.1 Changing from Provisional to Official Rules **USA**

Amend paragraph A.15.1 as shown:

Before being considered for adoption by the CIAM as official FAI rules, provisional rules must first have been used in each year of a two-year period up to the year of consideration. The rules must have been used in at least five international contests, or three World Cup contests. All the contests must be registered on the FAI Sporting Calendar and involve a total of at least five FAI member countries with at least two countries per contest and at least ~~50~~ **40** competitors in total per year.

Reason: Lowering the number of participates in a provisional event addresses a systemic *under reporting* of the number of fliers in a class like F1Q which is popular in the USA. Many American fliers are reluctant to purchase an FAI sporting license due to its high price (Currently $75, $100 next year) and their inability to effectively compete in the World Cup without travelling to Europe. Consequently the worldwide threshold partition (sic) number in paragraph A.15.1 and A.16.1 were reduced by ten (down 20% and 16.6% respectively).

FAI Free Flight World Cup 2015 Class F1Q, as of 16 October 2015 lists 32 F1Q fliers worldwide. Four American fliers are listed: Jack Murphy, Dick Ivers, Matt Gewain and David Lacey. But the American's Cup report as of September 15 2015 based on the similar scoring approach lists 11 American fliers. Therefore, the World Cup dragnet missed at least 9 USA F1Q fliers. The issue might pertain to other non-European countries as well.

c) A.16.1 Eligibility for World Championships USA

Amend paragraph A.16.1 as follows:

Before they can be considered by the CIAM for use in World and/or Continental Championships and/or any other FAI Category 1 event, there must be a minimum period of two years from the time the rules were made official. The rules must have been used in at least five international contests, or three World Cup contests, ~~each~~ with a minimum of six FAI member countries participating **worldwide each year**. At least two contests must be held … CIAM.

Reason: The requirement for six participating countries in *each* of the required World Cups or Continental Championships *contradicts* the country participation requirement in the preceding paragraph A.15.1 that states "The rules must have been used in at least five international contests, or three World Cup contests. All the contests must be registered on the FAI Sporting Calendar and involve a total of at least five FAI member countries with at least two countries per contest and at least 50 competitors in total per year."

Requiring the participation of six countries in *each* of six designated contests is most onerous. In fact, very few current World Championship free flight disciplines can meet this requirement. Furthermore, only World Cup contests held in Europe might be attended by so many countries. And keep in mind that this is required for a non-World Championship event.

Large World Cup contests in Europe have participants from 4-5 countries in a provisional event like F1Q. Examples are the three World Cup contests in Sweden and the Eurofly. In contrast, the Maxmen in the USA, was only attended by two foreign F1Q fliers from England and Israel.

d) A.16.2 Eligibility for World and Continental Championships Slovenia

Add additional text to paragraph A.16.2 as follows:

A.16.2. From 1st January 2014 and for at least four years, there is a moratorium on any class being permitted to apply for championship status **except for popular classes with more than 300 competitors at the World Cup competitions.**

Reason: There are popular categories (such as F5J) that are being held back by the A.16.2 moratorium. This proposal would enable them to apply for WC bids in 2017 and organise WC in 2019.

F5J has the following international competitions:
Intertour:

Year	Number of international competitions	Number of participating countries	Total number of competitors
2014	32	24	462
2015	43	25	542

Eurotour (World Cup)

Year	Number of international competitions	Number of participating countries	Total number of competitors
2014	16	17	303
2015	20	20	403

14.3 Volume ABR, Section 4B
(General Rules for International Contests – begins on page 38 (2015 Edition))

a) B.3.2 Sporting Licences **F2 Subcommittee**

Amend paragraphs a) and b) as shown.

a) Every competitor, team manager and assistant team manager entering an international contest **and F2D Mechanics in Category 1 competitions** must possess a valid Sporting Licence of the FAI. This Sporting Licence is issued by the NAC of the competitor, team manager or assistant team manager under the conditions of the General Section of the Sporting Code and must bear the national identification mark.

b) Organisers of any international competition must check FAI licences and must not permit entry to the competition to anyone who does not have a valid FAI licence nor permit entry to a First Category event (Championship) by anyone who has represented a different country in a First Category event (Championship) during the previous twenty four months. (Sporting Code General Section 3.1.3.6.4). **This restriction does not apply to F2D Mechanics.**

Reason: To bring the ABR into line with the current practice of requiring F2D mechanics to hold a valid FAI licence.

b) B.3.4 Age Classification for the Contest **Poland**

Amend paragraph B.3.4. a) as shown:

a) A competitor is considered to be a junior up to and including the calendar year in which he attains the age of ~~18~~ **21**. All other competitors are classed as Seniors.

Reason: Please do evaluate following facts:
1. There are no juniors in some classes: eg. F4C, F4G,
2. There are not enough juniors in classes: eg. F2C, F2B, F2A, F3P, F3C, F3N ….
3. Some CIAM classes are very difficult. Juniors of the age 18 and less need to gain experience and time for building and practising their model aircraft at a good level. The problem with juniors age limit exists. The above arguments are not exhaustive. CIAM Bureau should consider this.

Technical Secretary's Note: See also the following proposal which also refers to paragraph B.3.4 a).

c) B.3.4 Age Classification for the Contest **F2 Subcommittee**

Amend paragraph B.3.4. a) with the additional text as shown:

a) A competitor is considered to be a junior up to and including the calendar year in which he attains the age of 18 **except for F2 where the age shall be 25 years**. All other competitors are classed as Seniors.

Reason: F2 classes are both complex and physically demanding. Young people are unable to be competitive against senior pilots until after the age of 18 yrs. Once

reaching the age of 18 many good juniors are lost to F2 because they can no longer be competitive.

d) B.9.1 Free Flight **Belgium**

Add the sentence to paragraph b) as shown:

b) Starting positions are indicated by markers, spaced at least 10 meters apart along the starting line. **The starting poles for F1C shall be at least 50 m separated from the starting poles of other FF classes except for the powered classes F1P, F1J and F1Q**. In the case of F1A, the helpers shall launch the model at this pole. …3 b)

Reason: For obvious safety reasons, a minimum safety distance to be maintained between the F1C and the F1A, F1B, F1G, F1H and F1K starting positions

(The location of the F1P, F1J and F1Q starting poles is left to the judgement of the contest organiser.)

Technical Secretary's Note: Consequential change due to ABR Restructure. This change, if agreed, to be made in the F1 Volume.

e) B.15.1. Interruption of the Contest **Germany**

Amend paragraph a), add a clarification to sub-paragraph i) and amend paragraph b) as follows:

B.15.1. a) The contest should be interrupted or the start delayed by the ~~Jury~~ **Contest Director** in the following circumstances and in other exceptional circumstances decided by the ~~Jury~~ **Contest Director**:

i) The wind is continuously stronger than 12 m/s (9 m/s for Free Flight, Control Line, Scale and Space Models) measured at two **(2)** metres above the ground at the starting line (flight line), unless specified otherwise in the category rules for at least one minute (30 seconds for Control Line) (20 seconds for Free Flight). **The wind speed for the Soaring Classes is specified in the specific rules.**

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

Reason: The above decisions should be made by the Contest Director and not by the Jury. If the jury takes a wrong decision and there is a protest who should deal with this protest? In the "Jury handbook" is clearly stated that the jury should be independent and should only act if there is a protest.

f) B.15.2. Interruption of the Contest **Germany**

Delete paragraph B.15.2., and, as a consequence, renumber B15.3.:

~~B.15.2. In the cases described, the organiser is not obliged to return the entry fee nor repeat the contest. The results will be based on the scores of the finished rounds.~~

Reason: If the weather conditions don´t allow to fly the minimum rounds specified in the rules of the specific classes, the competition is not valid. If this happens the organiser must not return the entry fee or repeat the competition

If a contest is cancelled in time (may be one week in advance) for whatever reasons by the organiser, I´m sure that he will return the entry fee; for this situation we need no regulation.

g) B.16.1 Individual Classification **South Africa**

Amend the paragraph as follows:

e) For those categories where ~~juniors~~ **junior and woman competitors** may participate in a Continental or World Championship National Team under B.3.5. (b), individual awards for junior **and woman** competitors will be awarded to the first, second and third place juniors **and women**.

f) Where at least four juniors **or women**, from at least four different nations participate under B.3.5.(b), the winner shall earn the title of Junior **or Woman** World or Continental Champion in the category.

Reason: 1. The FAI Sporting Code General Section 2013, paragraph 3.16.3.2, states that medals will be awarded for woman's and junior's classes where appropriate, but there are currently no guiding paragraphs as to when it would be appropriate to have a woman's class.

Reason: 2. At Present the Sporting Code, paragraphs ABR B. 16.1.e) and f) exclude women in defining when it would be possible for medals to be awarded for a woman's class when one is appropriate.

Technical Secretary's Note i): The same proposal was presented to the 2015 Plenary Meeting.
ii): A more appropriate title may be Women's World Champion.

h) B.17.6 Identification Marks **F1 Subcommittee**

Delete free flight specific words from the end of paragraph B.17.6. b):

b) A model aircraft must not carry a national identification mark, an FAI licence number, an FAI sticker, or any other reference which relates to any person other than the competitor. At the processing of the model aircraft, the organiser must mark each FAI sticker (if required) ~~or, for Free Flight, each part of the model~~.

Reason: There is currently confusion between the requirement in B.17.6.b to mark every part of a free flight model and the later rule in B.17.13.a that the indication of a free flight model having been processed must be by a single stamp or mark by the FAI sticker. B.17.13 had introduced simplifications of processing free flight models to reduce the time spent in processing. The model identification identifies the model processed without the need for a lot of stickers or stamps on every component. While there might be some slight risk of the rule being avoided by a competitor having a number of components with the same identification number, it is considered that this unlikely to be a significant risk to set against the overall simplification of avoiding lots of stamps or stickers which often come off or are washed away during a competition.

Volume ABR, Section 4C, Part One begins overleaf

14.4 Volume ABR, Section 4C, Part One
(General Regulations for Model Aircraft – page 70 (2015 Edition))

There are no proposals additional to those contained in the CIAM General Rules (Annex 7f) for Section 4C – Part One

14.5 Volume ABR, Section 4C, Part Two
(Records – page 77 (2014 Edition))

a) 2.2 General Specifications of Model Aircraft and Aerostats for Record Attempts **Bureau**

Delete the text in 2.2.1 – Weight and substitute new words as follows:

2.2.1. Weight

a) For records mentioned under 2.1.4, item 1), the total weight of the model aircraft or aerostat in flying order, with fuel**/batteries** when carried, shall not exceed 5.00 kg. The maximum total weight ~~in flying order~~ ~~with fuel~~ of a helicopter **in flying order**, **with fuel/batteries when carried,** shall not exceed ~~6.00 kg~~ **6.5 kg**. For records in regular competition under 2.1.4. item 3), the model aircraft must comply with the specifications required for the class concerned.

2.2.2. Motive Power

a) The total swept volume of the piston(s) of the motor(s) shall not exceed 10 cm^3 **(except for helicopters where there is no restriction)**. Pulse-jet reaction motor(s) are not permitted except for circular flight (record No. 135).

Reasons: **Clarification**. Clarify specifications for Helicopters. This proposal seeks to standardise the weight of helicopters as 6.5kg (used throughout the Volume F3 Helicopters), and also make it clear that the weight for the purpose of setting records **includes** the fuel/batteries.

Volume F1 – Free Flight begins overleaf

14.6 Section 4C Volume F1 - Free Flight

a) 3.1.5 Definition of an unsuccessful attempt **F1 Subcommittee**

F1A: Amend the paragraph 3.1.5 c) as follows:

3.1.5. An attempt is classed as unsuccessful if the model is launched and at least one of the following events occurs. If this happens on the first attempt then the competitor is entitled to a second attempt.

c) **It is apparent to the timekeepers that** ~~When~~ a part of the model becomes detached during the launch **by the helper, while the model is being towed,** or during the **official** flight time.

Note: For F1H: same change also to 3.H.5 d)

Reasons: **Clarification**. This clarifies the need for the timekeepers to see the part that becomes detached and the fact that this applies at launch by the helper, towing and during the flight up to the end of the official flight time.

b) 3.1.7 Duration of Flights **F1 Subcommittee**

F1A: Amend the first paragraph as follows:

The maximum duration to be taken for the official flights in world and continental championships is four minutes for the first round and, if conditions allow, for the last round and three minutes for the other rounds. In other international events a maximum of three minutes will be used for all rounds unless different durations (not exceeding ~~four~~ **five** minutes) have been announced in advance in the contest bulletin for specific rounds.

Note: Change F1B: 3.2.7 and F1C: 3.3.7 to read "See 3.1.7".

Reason: **Clarification**. A proposal to change the maximum in the first round of F1A championships was presented to Plenary meeting 2015 which it was intended would make 3.1.7 for F1A identical to the existing rules 3.2.7for F1B and 3.3.7 for F1C. The proposal was passed by the Plenary meeting but when being implemented in the 2016 Sporting Code it was realised that there was one word different in the proposal compared to the existing text in 3.2.7 and 3.3.7. The rule 3.1.7 as presented to Plenary 2015 has been implemented in the 2016 Sporting Code but without the cross-reference from 3.2.7 and 3.3.7. This proposal is presented to correct this difference – it applies only to open internationals and allows flight time increase to five minutes instead of four minutes.

c) 3.1.8 Classification **F1 Subcommittee**

F1A: Add new item (9) as clarification to 3.1.8 f) as shown:

cont/…

3.1.8

f) If the number of competitors in a flyoff is 12 or more and is greater than 25% of the number of competitors in the competition, then the flyoff shall be split into two groups

1) The number of competitors in each group will be as closely as possible equal

2) Competitors are allocated a group and starting position by a single draw

3) A flyoff is flown for each group according to the other regulations of 3.1.8

4) The second group flyoff must be flown as soon as possible after the first group.

5) From both groups all flyers who achieve the maximum duration proceed to the next round.

6) An equal number of flyers from each group may proceed to the next round by including competitors from one group those with the best flights below the maximum time, providing the flight times are at least 75% of the maximum.

7) If the selections (5) and (6) result in fewer than 4 competitors proceeding to the next round, then the two competitors with the highest flight times in each of the groups will proceed to the next round.

8) Competitors eliminated in group flyoffs will be classified with final placing according to time achieved in the group flyoff

9) Competitors proceeding from group flyoffs to the later flyoffs will be classified only by times achieved in the later flyoffs after the group stages. The times in group stages do not count in their classification.

Reason: **Clarification**. The groups flyoff was approved by CIAM for application from January 2016. In advance of that, the system has been used in two World Cup events during 2015. One of these indicated a confusion about the scores to be used for classification. The additional item is an explicit clarification of intent of the original proposal, where it was stated in the reasons that "With another flyoff guaranteed by (7) this ordering will not determine the winners but just the lower places." However, the proposal did not include explicit words to mandate this effect. Its consideration at this stage of the rule implementation is requested.

d) 3.2.5 Definition of an unsuccessful attempt F1 Subcommittee

F1B: Amend paragraph 3.2.5 a) as shown:

3.2.5. An attempt is classed as unsuccessful if the model is launched and at least one of the following events occurs. If this happens on the first attempt, then the competitor is entitled to a second attempt.

a) **It is apparent to the timekeepers that** ~~When~~ a part of the model becomes detached during the launch or during the **official** flight time.

Note: Same change also to 3.3.5 b); 3.5.5 a); 3.6.5 c); 3.G.5 b); 3.J.5 c); 3,K.5 b); 3.Q.5 b).

Reason: **Clarification**. This clarifies the need for the timekeepers to see the part that becomes detached and the fact that this applies up to the end of the official flight time.

e) 3.3.2 Characteristics of Model Aircraft with Piston Motor(s) The Netherlands

F1C: Amend the following paragraph with the addition as shown

Fuel to a standard formula for glow plug and spark ignition motors will be supplied by the organisers, and must be used for every official flight. The composition shall be as follows: 80% methanol, 20% ~~castor or synthetic~~ oil. **Oil can be castor oil or synthetic oil. There is a free choice for the competitor.**

Reason: **Clarification and safety**. When the definition of Standard FAI fuel is clear specified (80% methanol, 20% oil) there are two possibilities:

1. 80% methanol, 20% Castor oil.
2. 80% methanol, 20% Synthetic oil.

Both types of specified fuels shall be supplied by the organisers and mixed in separate single batches.

Lots of competitors spread over the continents are using Synthetic oil. There are lots of well-known brands.
An extra indication on the (preliminary) entry form for F1C informs the organiser about the competitor needs.
If we remember the enormous number of crashes on the WC in France 2013 mostly due to polluted Castor oil, we have to categorise this clarification as a safety one.

f) 3.Q.2 Characteristics Germany

F1Q: Amend paragraph 6 in section 3.Q.2 as follows:

The motor run time will be determined by a maximum energy amount. In addition, motor runs over 40 seconds are regarded as overruns. The energy budget of each model is 4 Joules per gram of the total weight. For energy calculations, weight exceeding ~~500~~ **550** grams is to be ignored.

Reason: After the point of establishing the maximum weight of 550 gram to energy allocation into the rules, many sportsmen have invested a lot of time to build or money to buy new models to meet this requirement. Since the implementation of this requirement only a short time past and these models are in best condition.

If the new limit of weight will be valid permanently, all these model airframes and the big effort to make these ready to flight are obsolete. To reach a target with a rule change (in this case performance reduction), it should be carefully selected the best way and not a multiple rule revision at the same time. This will lead to the situation, that a number of sportsmen will no longer follow the rapid rule changes and will quit flying F1Q. It's not a good choice for further increasing participation in this class.

This new amount of weight limitation doesn't have a significant influence of the performance reduction which should be achieved with the rule change last year. It will only give a disadvantage for the larger models in opposite to the smaller ones.

Due to the 2015 rules with reduced energy and extended motor run time there is a trend to slow, long time climb models with a low wing load. Thus the safety argument to reduce the weight and to minimize the energy and the risk of damages in case of a crash is no longer a very important one. The high speed climbing models were a requirement of the rule with battery weight and motor time limitation. These climb figure will have a disadvantage under the new rules, so the high speed; straight climbing models will lose importance.

To play with energy amount and motor run time is a good way to find an acceptable level of performance. It's to avoid making imprudent changes with the airframes of the models in the future. To change some technical components or setup parameters is much easier, although in the past there was also some turbulences (e.g. in the case of detailed limiter specifications).

The last season has shown that slower models become advantageous in the competition. This will lead in the future to a process of replacing the less competitive heavier models by model designs which have better adapted characteristics for the new rule without the need of an extra rule change. By avoiding making old models obsolete, rule changes will be more easily accepted by the competitors.

g) Annex 1 - Rules for Free Flight World Cup **F1 Subcommittee**

4. Points Allocation

Replace the points table and amend the paragraph below the table as shown. For clarity, the old points values are not shown; the new values are the old values multiplied by 10. The following items (a) to (e) remain unchanged.

Points are allocated to competitors at each contest according to their placing in the results and the number of competitors beaten as given in the following table and the following items:

Placing	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Points	**500**	**400**	**300**	**250**	**200**	**190**	**180**	**170**	**160**	**150**	**140**	**130**
Placing	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Points	**120**	**110**	**100**	**90**	**80**	**70**	**60**	**50**	**40**	**30**	**20**	**10**

~~Each competitor awarded placing points is eligible for a bonus according to the number of competitors they have beaten in the competition. The bonus points are calculated as 1 point per 10 people beaten in F1A, F1B or F1E, 1 point per 5 people in F1C, F1Q, F1A Junior, F1B Junior, F1P Junior and F1E Junior. The number of bonus points is rounded down to the nearest whole number.~~ **Each competitor awarded placing points is eligible for one bonus point for each competitor they have beaten in the competition.** The number of people beaten by someone in place P is (N-P) with N the number of competitors defined in b) below.

Reason: The current system awards bonus points for every 5 or 10 people beaten, so there is a jump of one bonus points as each threshold is crossed. The proposed system introduces a smooth increase of bonus points for every single person beaten. To maintain the relative magnitude of bonus points and place scoring points without resorting to decimal points, the scoring points in the table are the current values multiplied by 10. The smooth progression of bonus points will reduce the advantage of adding a specific number of nominal competitors to an event to increase the winner's bonus points.

h) Annex 1 – Rules for Free Flight World Cup **F1 Subcommittee**

4. Points Allocation

Modify paragraph b) as follows:

b) Points are awarded only to competitors in the top half of the results list (if N is the number of competitors who completed ~~at least one flight~~ **a flight in the first round of the competition**, then the points from the above table are awarded only for places 1 to N/2, rounding up when necessary in calculating the N/2 place).

Reason: This ensures that the number of competitors is known after the first round, fixing the number who can be awarded World Cup points and the maximum number of bonus points available, with no possibility of change by introducing late entries.

i) Annex 2 – A Guide for the Organisers of FAI Contests in the Outdoor Free Flight Classes **F1 Subcommittee**

Replace the existing guide using the replacement text as shown in Agenda Annex 7a:

Reason: Revisions have been made to the guide to reflect current practices and to add details of fuel mixing and motor measurement.

Volume F2 Control Line begins overleaf

14.7 Section 4C Volume F2 - Control Line

F2A

a) 4.1.17. Timing **F2 Subcommittee**

Amend the paragraphs as shown:

Electronic Timing with Manual Backup

(i) The recorded speed in km/h shall be taken from the Electronic Official Speed (~~Eoff column~~ **E Result** for the TransiTrace system) of the electronic system for the result.

Electronic Timing with Electronic Backup (Primary & Secondary Systems)

(i) The recorded speed in km/h is to be taken from the Electronic Official Speed (~~Eoff column~~ **E Result** for the TransiTrace system) of the primary system for the result.

(iii) In the case where the primary system does not return a clear time and speed, then the recorded speed in km/h shall be taken from the Electronic Official Speed (~~Eoff column~~ **E Result** for the TransiTrace system) of the secondary system for the result.

Reason: The change is required in order to bring to code in line with the latest version of the TT software.

F2B

b) 4.2.10. Scoring **Poland**

Amend paragraph 4.2.10 a) as follows:

a) Every judge shall award points to every registered competitor during every official flight for every manoeuvre flown in the correct sequence. Judges shall only score each contestant's first attempt at each manoeuvre. The number of points awarded may vary between 1 point and 10 points. All marks between the 1 point minimum and the 10 point maximum shall be awarded in increments of a minimum of **five** ~~one~~ tenth**s** of a point (0.5). These marks are multiplied by a K-factor which varies with the difficulty of the manoeuvres.

Reason: In the opinion of many F2B judges and competitors it is absolutely impossible, in such short time between figures, to give reasonable mark using increments of 0.1. According to the existing rules is rather an impression than scoring now.

F2C

c) 4.3.1. Definition of a Team Racing Event **Austria**

Replace paragraph 4.3.1 e) as shown:

~~e) The qualifying races and the semi-finals races are run over 100 laps, corresponding to 10 km. The final race is run over 200 laps, corresponding to 20 km.~~

e) **Qualifying and semi-final races are run over 100 laps (10 km); 2 pitstops (landing for refuelling) are mandatory. The final race is run over 200 laps (20 km); 4 pitstops are mandatory.**

Reason: To re-establish some interest in F2C after the adoption of 3mm venturi diameter, which resulted – in only one season of research – to 50 laps range by tank, so only one pit-stop and less interest for the race.
This change doesn't affect the hardware at all. Just more interest for pilots, mechanics, spectators…the sport.

Technical Secretary's Note: The above proposal was also submitted by France and The Netherlands.

d) 4.3.4. Characteristics of a Team Racing Model Aircraft — Sweden

Amend sub-paragraph 4.3.4 l) as follows:

l) Maximum fuel permitted: ~~7~~ **5** cm^3. Only one tank is allowed, to contain fuel and oil for lubrication.

Reason: With the 3 mm venturi, introduced in 2015, it has become common to get more than 50 laps per tank. This means that the pitting work by the mechanic has been strongly reduced in importance for the team's result. With the proposed amendment, we will have about the same number of pit stops as before. At the last European Championships, all of the semi-finalists used 50 laps per tank in the qualifying rounds to get into the semi-finals.

Technical Secretary's Note: A successful proposal in either Agenda Items c) or d) will once again have World Record consequences.

e) 4.3.6. Organisation of Races — F2 Subcommittee

Amend paragraph 4.3.6 b) with additional text as shown below:

b) The draw is organised in such a way that, when possible, **1)** only one team of any nation may participate in a qualifying race or semi-final race**, and 2) for qualifying races, each team shall have a first, second and third choice of sectors. If conflict arises from attempting to apply these two requirements, separating competitors by country will have precedence**.

Reason: The choice of sector has a very significant impact on the outcome of a race due to prevailing weather conditions. In the interest of fairness to all competitors, during the qualifying races, the draw should be made to give each competitor a first, second and third choice.
While the draw should be random in nature, simple procedures are available that can achieve this fairness in setting the qualifying races.

f) 4.3.11. International Team Classification — United Kingdom

Amend paragraph 4.3.11 as follows:

4.3.11. International Team Classification

International team classification is established by adding the ~~numerical position~~ **three best individual race times achieved by each National team.** ~~achieved by each individual team. The team with the lowest total is ranked first, etc. with complete three-team teams ahead of two-team teams which in turn are ranked ahead of single team entries. In case of a team tie,~~ The **National** team with the lowest total is ranked first, with **teams with three race times ranked ahead of teams with two race times which in turn are ranked ahead of teams with one race time.** In case of a team tie, the best individual ~~placing~~ **time** decides.

Reason:

1) Team racing is an event that is determined solely by the stopwatch, therefore it is the most appropriate method of calculating the international team classification results.

2) It reduces the possibility that ties will occur.

3) It prevents the anomaly where a national team can score a high placing even though one of its teams has failed to achieve a timed result in any of its races.

g) 4.3.12. Judges and Timekeepers F2 Subcommittee

Delete 4.3.12 paragraph c) and replace with the new text below:

c) The time for the flight shall be calculated as defined below.

i) If all three watches record a time, a maximum tolerance of 0.18 seconds is allowed between the middle watch time and each of the two other watch times (lower and higher ones). If all recorded times are within the defined tolerance, the time for the flight shall be the average of the three watch times.

ii) If one stopwatch differs from the closer of the other two by more than 0.18 seconds, then the average time shall be calculated from the other two watch times

iii) If both the lower and upper recorded times exceed the tolerance, the team shall be given the choice between having a reflight or accepting the middle time as the time for the flight. Once the team has made its choice, the decision is irreversible.

iv) If only two watches record a time and they are within the 0.18 second tolerance, the time for the flight shall be the average of the two watch times.

v) If only two watches have a time and they are not within the 0.18 second tolerance, the team shall be notified. The team may accept the higher of the two watch times or be granted a reflight. Once the team has made its choice, the decision is irreversible.

vi) If only one watch has a time, the team shall be notified. The team may accept the single time or be granted a reflight. Once the team has made its choice, the decision is irreversible.

vii) If all watches fail, there will be no recorded time, the team shall be notified and granted a reflight.

viii) The time retained will be made up to the next upper 1/10th second.

ix) All decisions about timing must be reported to the F2C Chief Judge without delay.

Reason: Current rules do not address the situation when the time keepers have a watch failure.

h) 4.3. CLASS F2C – TEAM RACING MODEL AIRCRAFT F2 Subcommittee

Replace the entire section 4.3 with the revised text as shown in Agenda Annex 7b. For a synopsis of changes and clarifications, refer to Agenda Annex 7c:

Reason: The rules have been rewritten into a form of English that is less open to differing interpretations when translated into different languages. The opportunity has been taken to both reorder the rules and to collate together similar topics which have become disjointed and therefore, difficult to follow as successive rule changes have been introduced over the years. Specific changes and clarifications have been made.

F2D

i) 4.4.2. Definition of a Combat Model Aircraft Germany

Amend paragraph 4.4.2 a) with additional text as shown below and make consequential changes to 4.4.5 and 4.4.9 as shown:

4.4.2. **Definition of a Combat Model Aircraft**

a) Model aircraft in which the propulsion energy is provided by a piston **or electric** motor(s) and in which lift is obtained by aerodynamic forces acting on surfaces which remain fixed in flight, except for control surfaces.

4.4.5. **Characteristics**

a) Maximum loading: 100 g/dm²
Maximum weight (ready to fly): 650 g
Electric motor(s) or IC engine(s) with ~~M~~maximum swept volume of ~~motor(s)~~: 2.5 cm³

d) ~~The motor~~ **IC engines** shall be naturally aspirated via a single round venturi with a maximum effective diameter of 4 mm.

e) Any interconnecting chamber between the air intake and the induction port of ~~the motor~~ **IC engines** shall have a maximum volume of 1.75 cm³. This clearly prohibits sub-piston induction for supplementary air intake.

4.4.9. **The Heat from Start to Finish**

d) ~~The motor(s)~~ **IC engines** must be started by flicking the propeller by hand.

Reason:
- Training and practising is difficult or impossible in certain Regions of the World (Western Europe, US) due to the still extreme noise of a F2D model and legislative noise restrictions, also on model flying fields.

- Combat competition sites in Western Europe disappeared due to noise restrictions.
- Health of mechanics is concerned, because the engine noise of a standard up to date F2D-engine is about 110 to 118 dB at the location of the ear of a mechanic. This will cause hearing disorder even if the exposure time is short.
- 95% of the F2D pilots have to rely on one manufacturer of the IC engines who is located close to the crisis region in the Ukraine (border to Russia).
- It is difficult to get good IC engines (they are sold only on a few competitions).
- All components for the electric drivetrain are available worldwide from many manufacturers.
- Extreme high prices for good IC engines: 260 to 900 $. Suitable electric motors are available from 18$, the complete electric drivetrain from 80 to 100$.
- Electric motors are safer and easier for beginners, because they must not be started by flicking the propeller by hand.
- Nitromethane will be a single source (China) with bad quality in the future.
- There is no real impact on all F2D Pilots who do not want to change their drivetrain (except from fighting against few competitors with electric drivetrain).
- The output of more than 20 years of the F2D "silencer" rule – even with strengthening modifications - is not audible. We have still more than 110 dB noise in 1 metre
- It was demonstrated, (World Cup Aalborg 2015), that an electric driven combat model can cope with a state of the art IC engine driven F2D model. The only restriction of the electric drivetrain is a shorter flight time due to battery weight limitations which forces to pitstops.
- Limiting of the maximum weight is an easy and effective measure to restrict the available power of electric driven models, as demonstrated in electric speed (F2G). Current F2D models are much lighter (500 – 550 g) than the suggested weight limit, so they are not affected by this rule change.

j) 4.4.5. Characteristics **F2 Subcommittee**

Amend paragraph 4.4.5 i) with additional text as shown below:

4.4.5.i) The model aircraft shall be equipped with a device **(referred to as the "streamer hook")**, specially designed to retain the streamer, which shall be fitted on the longitudinal centre line and sufficiently strong so that the streamer does not become detached under normal flying conditions.

Reason: This change clarifies the name for the streamer attachment device.

k) 4.4.9. The Heat from Start to Finish **F2 Subcommittee**

Insert a new sub-paragraph 4.4.9 p) as shown:

4.4.9.p) In case of a fly away (where the shut-off works) the mechanic can choose to leave the model where it landed and just collect the streamer.

Reason: To clarify the mechanic's choices in the event of a flyaway when the shutoff works.

l) 4.4.12.C Penalties and Disqualifications **F2 Subcommittee**

Replace the text in 4.4.12.C.p) as shown:

4.4.12.C.p) ~~If, during a line tangle where one or both models remain airborne, his mechanic(s) enters the flying circle.~~ **If his mechanic(s) enters the flying circle while both models are flying, or during a line tangle where at least one of the models remains airborne.**

Reason: To clarify the circumstances for a penalty if the mechanic enters the circle.

m) 4.4.14. Individual and Team Classification F2 Subcommittee

Amend paragraph 4.4.14.k) with the additional text as shown below:

4.4.14.k) The team classification is established by taking the total scores, obtained in 4.4.14.g) above, of the three best scoring members of the team and adding them together. In the case of a team tie **for any of the first three places**, the team with the lower sum of place numbers, given in order from the top, wins. If still equal, the best individual placing decides. Complete three-competitor teams are ranked ahead of two- competitor teams which, in turn, are ranked ahead of single competitor entries.

Reason: This change clarifies that only the top three places are subject to a tie break.

F2 Annexes

n) Annex 4C – Team Race Panel of Judges Guide F2 Subcommittee

Replace the entire Annex 4C with the revised text as shown in Agenda Annex 7d. For a synopsis of changes and clarifications, refer to Agenda Annex 7c.

Reason: The rules have been rewritten into a form of English that is less open to differing interpretations when translated into different languages.

The opportunity has been taken to both reorder the rules and to collate together similar topics which have become disjointed and therefore, difficult to follow as successive rule changes have been introduced over the years.

o) Annex 4D – Rule 4.4.9 The Heat from Start to Finish F2 Subcommittee

Add a new paragraph 4.4.9 p) as follows:

4.4.9. p) If he chooses to bring the model back closer to the pitting circle the model and remaining lines should be left at least 3 metres outside the pitting circle. In case the model lands in the pitting circle or close to it the model and remaining lines must be collected and kept within the pitting area. The purpose of this is to make sure that there is a clear path for mechanics when running between pitting positions.

Reason: To clarify the mechanics choices in the event of a flyaway when the shutoff works.

p) Annex 4D – Rule 4.4.11. Reflights F2 Subcommittee

Additional text for paragraph 4.4.11 c) as follows:

4.4.11. c) The Circle Marshal can also grant a reflight if there is a line tangle where both models are grounded and he considers the tangle impossible to clear. Before a reflight is called, both pilots should be asked if they would agree to continue the match without clearing the tangle.

Reason: To clarify when the circle marshal may award a reflight following a line tangle.

q) Annex 4D – Rule 4.4.12 Penalties and Disqualifications F2 Subcommittee

Add a new paragraph 4.4.12.C. j) (after f) as follows:

4.4.12.C. j) This rule only applies when his opponent is still flying. However, when both models are grounded both pilots must be observant of their opponent thereby avoiding unsafe situations.

Reason: To clarify when a competitor will be disqualified.

r) Annex 4E – World Cup Rules 4.E.1. – Classes F2 Subcommittee

Amend paragraph 4.E.1. to add a new class:

4.E.1. Classes

The following separate classes are recognised for World Cup competition in Control Line: F2A (Speed), F2B (Aerobatics), F2C (Team Racing), ~~and~~ F2D (Combat) **and F2F (Profile Team Racing)**.

Reason: Making F2F a World Cup class which will help team race participation at World Cup competitions.

s) Annex 4H – Class F2F – Diesel Profile Team Racing Model Aircraft – 4.H.4. Characteristics of a … F2 Subcommittee

Add a new paragraph 4.H.4. e) as follows and renumber the subsequent paragraphs:

4.H.4. e) The engine may not be enclosed within a cowl, but a heat shield which conforms to the profile of the cylinder may be fitted to the engine.

Reason: This addition matches the rules to current practice and it clarifies how the cylinder shield may be fitted.

t) Annex 4K – Class F2G – Electric Speed 4.K.2. Characteristics of an Electric Speed Model Aircraft United Kingdom

Modify paragraph 4.K.2 with additional text to d) as shown. Correct the numbering so that the existing paragraph g) is correctly delineated f). Number the existing hanging sentence g).

4.K.2 Characteristics of an Electric Speed Model Aircraft

a) Maximum voltage of power supply 42 volts off load.

b) Minimum total projected area 5 dm^2.
c) Maximum loading 100g/dm^2.
d) Maximum weight 600 g. **(Note: this weight shall be checked at random after flights, see 4.K.17 c))**
e) The model aircraft must take off from the ground.
~~g)~~ **f)** A radio control system may be used to control the electric motor in accordance with ABR 1.3.2 c).
g) A person other than the pilot may operate this system.

Technical Secretary's Note: The above proposal is also contained in Agenda Item x).

Reason: Clarification.

u) Annex 4K – Class F2G – Electric Speed **United Kingdom**
4.K.2. Characteristics of an Electric Speed Model Aircraft

Add new text to the newly created paragraph g) (see the previous proposal t) and add a new paragraph h):

4.K.2 Characteristics of an Electric Speed Model Aircraft

a) Maximum voltage of power supply 42 volts off load.
b) Minimum total projected area 5 dm^2.
c) Maximum loading 100g/dm^2.
d) Maximum weight 600 g. **(Note: this weight shall be checked at random after flights, see 4.K.17 d))**
e) The model aircraft must take off from the ground.
~~g)~~ **f)** A radio control system may be used to control the electric motor in accordance with ABR 1.3.2 c).
g) A person other than the pilot may operate this system. **A person other than the pilot may control the starting and shutdown of the electric motor. If the pilot controls the shutdown of the electric motor he must maintain control of the electric motor until the aircraft power system has been made safe by an assistant. Between initial motor start and final shut off, the pilot may control the power of the motor.**
h) The pilot must make the motor power system live (The pilot must connect the motor power battery to the ESC whilst preparing the model for flight inside the flying circle).

Reason: Safety. This proposal ensures that the motor is under control at all times, without giving a speed advantage to the pilot.

v) Annex 4K – Class F2G – Electric Speed **France**
4.K.2. Characteristics of an Electric Speed Model Aircraft

Add new text to 4.K.2 g) as follows:

Technical Secretary's Note: Although the existing paragraph is delineated g) that is an error. There is no paragraph f) and therefore the below (if accepted) will become an extension to paragraph f) when this error is corrected. See previous proposals relating to this section.

4.K.2. g) A radio control system may be used to control the electric motor in accordance with ABR 1.3.2 c). A person other than the pilot may operate this system. **A mechanical device allowing a total instant shutdown of any power feeding of the engine(s) must be fitted on the model itself.**

Reason: Safety. It often occurs that the engine starts or restarts untimely, sometimes at the pit area after the end of a flight. It's very dangerous to pilots, helpers or any other persons.

w) Annex 4K – Class F2G – Electric Speed **France**
4.K.4. Length of Course

Amend paragraph 4.K.4 b) as follows:

4.K.4. Length of Course

a) The measured distance covered by the model aircraft must be at least one kilometre.

b) The radius of the flight circle must be ~~15.92 m (10 laps = 1 km)~~. **17.69 m (9 laps – 1 km).**

Reason: Safety. Speeds have now increased to a point where it is prudent to reduce the centrifugal force and the speed of rotation. There is a precedent in F2A.

Technical Secretary's Note: The above proposal was also submitted by the United Kingdom.

x) Annex 4K – Class F2G – Electric Speed **United Kingdom**
4.K.17. Individual Classification

Add a new paragraph c) to 4.K.17 as follows:

4.K.17. Individual Classification

a) The best speed attained during the three flights is used for classification. In case of a tie, to separate the fliers, the second best speed, and if still a tie, the third best speed is used.

b) The first three positions are subject to rechecking of the declared model aircraft characteristics.

c) The weight of the models shall be randomly checked throughout the competition at the end of a competitor's flight.

Reason: Model weight is critical. Just a few more grams of battery weight can add significant amount of extra power.

Technical Secretary's Note: The above proposal is also contained in Agenda Item t).

Volume F3 Aerobatics begins overleaf

14.8 Section 4C Volume F3 - RC Aerobatics

a) Class F3P 5.9.10 Judging **Bureau**

Amend sub-paragraph 5.9.10 c) with the addition of a sentence as follows:

c) For World or Continental Championships the organiser must appoint one or more panels of five judges each. The judges must be of different nationalities. Those selected must reflect the approximate geographical distribution of teams having participated in the previous World Championships and the final list must be approved by the CIAM Bureau. At least one third, but not more than two thirds of the judges must not have judged at the previous World Championship. Judge assignment to the panels will be by random draw.

In the case of more than one panel of judges, the panels may be combined for final rounds of flights.

Reason: **Clarification** of panels of judges for World or Continental Championships especially for the final rounds of flights according to what has been done at the 2015 F3P World Championship in Poland.

Volume F3 Helicopter begins overleaf

14.9 Section 4C Volume F3 - Helicopter

a) ANNEX 5E - F3C Judges' Guide **F3 Heli Subcommittee**

5E.6.11. - Autorotations

Change Judging Criteria. Delete the entire section and insert the alternate text as shown below:

~~An autorotation begins when MA crosses an imaginary plane that extends vertically upward from a line drawn from the centre judge out through the centre of the 1m helipad. MA must be in the autorotation state when it cuts this plane, the engine power must be reduced to idle (or off) at this point and the MA must be descending. During the manoeuvre, the forward speed and rate of descent should be constant, which means that the angle of the flight path is also constant. After landing the MA must be parallel to the judges' line. If the flight path is stretched, shortened or deviated from, to reach a circle the manoeuvre must be downgraded. The original flight path gives a basic maximum score according to the description and there will be additional downgrades of 1 or 2 points depending of the severity of the deviation. For example: If the flight path clearly points to a landing close to flag 1 (2) and the path is stretched to reach a circle, the score can only be a maximum of 6 (outside the circles) and there will be an additional downgrade of 2 points for the stretch, so the score can only be a maximum of 4. If the pilot would have landed without stretching, the maximum score would have been a 6. Therefore, stretching the flight path must never lead to a higher score.~~

~~Scoring criteria for Autorotation landings:~~

~~Landing gear inside 1m circle = Maximum 10 points.~~

~~Rotor shaft points to inside of 1m circle = Maximum 9 points.~~

~~Landing gear inside 3m circle = Maximum 8 points.~~

~~Rotor shaft points to inside of 3m circle = Maximum 7 points.~~

~~Rotor shaft points to outside of 3m circle = Maximum 6 points.~~

The autorotation begins when the helper announces the figure with „now" and ends with the landing and the helper calling „finished". The figure autorotation may contain additional manoeuvres.
The manoeuvre description must state clearly the moment when the engine has to be powered off or set to idle position. In order to obtain the maximum score of 10 points the MA must have executed the flying manoeuvres exactly as described in the manoeuvre description. The MA must land smoothly inside the 1 m circle, it must be parallel to the judges line and the engine has to be powered off or set to idle position.

Scoring:
Flying manoeuvres incl. smooth landing parallel to the judges line = max. 6 points

Scoring for the landing:

Rotor shaft is inside the 1 m circle = + 4 points
Rotor shaft points to the line of the circle= + 3 points
Rotor shaft is inside the 3 m circle= + 2 points
Rotor shaft points to the line of the 3 m circle= + 1 point
Rotor shaft is outside the 3 m circle. + 0 points

Note: If a flying manoeuvre is missed out or if the engine is not powered off (or not set to idle position), the score for the complete figure shall be zero.

Reason: Clarification.

b) ANNEX 5G - F3N Judges' Guide F3 Heli Subcommittee

5G.6.7. - Flip

Add new text to 5G.6.7. as shown:

5G.6.7 FLIP

A flip is a rotation about an axis normal to the rotor shaft. Stationary flips need to have a small altitude oscillation (low with RD horizontal, high with RD vertical) which should be less than 50 cm. Lateral deviations of these flips should be downgraded by 1 point per 50 cm.
Travelling flips should not affect the described flight path.
A pushed flip is done by performing the elevator impulse at the transmitter in forward direction. A pulled flip is done by performing the elevator impulse at the transmitter in backward direction

Reason: Clarification.

c) ANNEX 5G - F3N Judges' Guide F3 Heli Subcommittee

5G.8.6. – EVALUATION OF THE LEVEL OF DIFFICULTY FOR FREESTYLE SCHEDULE

Remove the existing table 5G.8.6 and replace with the table below:

Aerobatic Manoeuvres in Basic Orientations	
10	Examples: Immelmann, short straight passages, loop, loop with full pirouette on top, roll, turn, 540° turn, pirouettes
15	Examples: ½ Cuban eight, long passages, nose-in circle, flips, autorotation
20	Examples: inverted hovering on eyelevel, flip sideward, Cuban eight, flips with hovering stops
20-30	Examples: Horizontal eight, loop sidewards, turn with hesitations and/or changes of turning direction, rolling stall turn, autorotation with 180 degree turn, death spiral, knife edge pirouette, speed circle, stationary tictoc, funnel, 4-point roll, multi-point tictoc, Snake
Aerobatic Manoeuvres in Several Orientations	
30-45	Aerobatic manoeuvres that demonstrate several orientations like inverted, sideways, backwards etc. Examples: Backward Inverted Cuban eight, skids in and out knife edge manoeuvres, snake parallel to flight line and to centerline, different kinds of funnels like waltz

Aerobatic Manoeuvres including Piros, Rolls and Flips Etc	
40-55	Aerobatic manoeuvres flown in a way where in addition to the CG movement of the main manoeuvre, the model is continuously performing rolls, piros, flips, tictocs or similar. In order to get a high score, many orientations must be shown. Examples: Pirouetting Globe, Chaos, Rolling Globe, Rolling circles, Pirouetting funnels
Aerobatic Manoeuvres including Reversals and Transformations	
50-60	Aerobatic manoeuvres flown in a way, where piros, rolls, tictocs or other secondary manoeuvres are included/integrated and reversed in an equal and balanced way. Examples: Rolling globe with roll reversals, horizontal circle with continues flips/rolls so that tail boom is always parallel to centerline, Reversing chaos In order to score near maximum, many orientation changes must be displayed, and flight must include many clearly defined manoeuvres.

Reason: Clarification.

d) ANNEX 5G - F3N Judges' Guide F3 Heli Subcommittee

5G.8. – CRITERIA FOR JUDGING FREESTYLE FLIGHT AND MUSIC FREESTYLE

Change the values in judging as shown:

For Freestyle and Music Freestyle flights, the entire flight~~s~~ will be judged according to the table below.

Criterion	**Max Points Freestyle**	**Max Points Music Freestyle**
Difficulty	~~80~~ **60**	40
Harmony	20	~~60~~ **50**
Creativity	20	~~40~~ **50**
Precision	~~20~~ **60**	~~20~~ **40**
Safe presentation	20	20

For both the Freestyle and Music Freestyle flights the judges can give up to the maximum points (for Freestyle - ~~80~~ **60** for difficulty, **60 for precision** and 20 for the other criteria).

Reason: Safety Considerations.

At the moment pilots use very difficult manoeuvres which they are not able to fly safety and precisely. So they get high scores in difficulty but the punishment in precision does not really influence the result.

Volume F3 Soaring begins overleaf

14.10 Section 4C Volume F3 - RC Soaring

F3F – Radio Control Slope Soaring Gliders (rule changes permitted at 2016 Plenary)

a) 5.8.1. Definition **Germany**

Delete the second and third sentences:

5. 8.1. Definition: This contest is a speed event for radio controlled slope gliders. ~~A minimum of four rounds must be flown. The organiser shall run as many rounds as the conditions and time permits.~~

Reason: The minimum number of rounds is now defined in paragraph 5.8.13 Classification (see proposal F3F 5.8.13 GER 2016); the sentence that an organiser shall run as many rounds as possible is trivial.

b) 5.8.7. Organisation of Starts **Germany**

Amend the section as shown below:

The flights are to be performed round by round. The starting order is settled by draw in accordance with the radio frequencies used.
The competitor is entitled to three **(3)** minutes of preparation time from the moment he is called to the ready box.
After the three **(3)** minutes has elapsed, the starter may give the order to start. After the starter has given the order to start, the competitor or his helper ~~is to~~ **must** launch the model within **thirty** (30) seconds ~~The competitor or his helper is to launch the model~~ by hand from the starting area indicated by the organiser.
If possible, the starting area, including the audio system, shall be situated in the middle of the course (equal distance from Base A and Base B).
The time from launch to the moment the model enters the speed course must not exceed thirty **(30)** seconds.
If the model has not entered the speed course (i.e. first crossing of Base A in the direction of Base B) within the thirty **(30)** seconds, the flight time will commence the moment the thirty **(30)** seconds ~~expires~~ **expire.** If the model has not entered the speed course within the thirty **(30)** seconds, this is to be announced by the judges.

Reason: Clarification. More exact wording. The values should be written in words and numbers.

c) 5.8.8. The Flying Task **Germany**

Delete two words from the heading. Amend the paragraph as shown below:

5.8.8. ~~The Flying~~ Task

The ~~flying~~ task is to fly **ten** (10) legs on a closed speed course of **one hundred** (100) metres in the shortest possible time from the moment the model first crosses Base A in the direction of Base B. If some irremovable obstacles do not allow **one hundred** (100) metres, the course may be shorter but not less than **eighty** (80) metres. This exception does not apply for world or continental championships**.** The

competitor's model aircraft must be visible to the appropriate judge on the turns at Bases A and B.

Reason: Delete the redundant word 'flying'. The values should be written in words and numbers.

d) 5.8.9. The Speed Course **Germany**

Amend the section as shown below:

5.8.9. The Speed Course

The speed course is laid out along the edge of the slope and is marked at both ends with two **(2)** clearly visible flags. The organiser must ensure that the two **(2)** turning planes are mutually parallel and perpendicular to the slope.

Depending on the circumstances, the two **(2)** planes are marked respectively Base A and Base B.

Base A is the official starting plane. At Base A and Base B, an **o**fficial announces the passing of the model (i.e. any part of the model aircraft) with a sound signal when the model is flying out of the speed course. Furthermore, in the case of Base A, a signal announces the first time the model is crossing Base A in the direction of Base B.

Reason: The values should be written in words and numbers.

e) 5.8.10. Safety **Germany**

Add the word 'rules' to the heading; delete "speed course" and insert "flying range for the timed flight"; add five new rows of text; strike out four rows; insert nine new rows of text as follows:

5.8.10. Safety Rules

The sighting device used for judging the turns must be placed in a safe position. The organiser must clearly mark a safety line representing a vertical plane which separates the ~~speed course~~ **flying range for the timed flight** from the area where judges, other officials, competitors and spectators stay.

The flight will be penalised with 300 points, when sighted by means of an optical aid, the safety plane is crossed by any part of the model aircraft. The instrument used to check the crossing of the vertical safety plane must also assure that the safety plane is orthogonal to Base A and Base B. The penalty of 300 points will be a deduction from the competitor's final score and shall be listed on the score sheet of the round in which the penalty was applied.

~~Crossing the safety line by any part of the model aircraft during the measured flight will be penalised by 100 points subtracted from the sum after conversion, the penalty not being discarded with the result of the round. The organiser must appoint one judge to observe, using an optical sighting device, any crossing of the safety line.~~

The organiser must clearly mark the boundary between the landing area and the safety area assigned for other activities.

After release of the model aircraft from the hand of the competitor or helper, any contact of the model aircraft with any object (earth, car, stick, plant, etc) within the safety area will be penalised by 300 points.

Contact with a person within the safety area will be penalised by 1000 points. The number of contacts during one attempt does not matter (maximum one penalty for one attempt). The penalty will be a deduction of 300 or 1000 points from the competitor's final score and shall be listed on the score sheet of the round in which the penalty was applied.

Reason: The timed flight (including the first thirty seconds) must take place at the side of the safety plane at the side of the slope for safety reasons. If there is any violation 100 points penalty are not enough; the flight at the slope can be compared with the task C Speed in the class F3B. There are 300 points penalty that the pilot avoids to cross the safety plane. The organizer must clearly mark a safety area; in this case we can take 1:1 the rules from F3B concerning the contact with any obstacle or with a person.

f) 5.8.13. Classification **Germany**

Amend the paragraph with deletions and additional text as shown below:

5.8.13. Classification: ~~The sum of the competitor's round scores will determine his position in the final classification.~~ **A minimum of four (4) rounds must be flown for the competition to be valid. In this case the lowest** ~~If more than three rounds were flown the lowest~~ round score of each competitor will be discarded; if more than fourteen rounds were flown, the two lowest round scores will be discarded. ~~and the others~~ **The remaining results** are added to obtain the final score which will determine ~~his~~ **the** position **of the pilot** in the final classification.

Reason: Clarification. This defines how many rounds must be flown for the result of a competition to be valid. This was content in paragraph 5.8.1. "Definition"; but the better place is paragraph 5.8.13. "Classification".

g) 5.8.15. Changes **Germany**

Amend the paragraph as follows:

5.8.15. Changes

Any changes ~~in~~ **of** the flight and landing areas may be made only between ~~flight~~ rounds **or between groups.**

Reason: It should be also possible to change flight and landing areas between groups.

h) 5.8.16. Interruptions **Germany**

Add the words 'weather conditions' to the heading; add to point a); add a new point c); and delete the final two paragraphs, inserting new wording as shown:

5.8.16. Weather Conditions and Interruptions

A round in progress must ~~temporarily~~ be interrupted if:

a) The wind speed is below **three** (3) m/sec or more than **twenty-five** (25 m/sec) for at least **twenty** (20) sec~~onds~~ **two (2) metres above the ground at the flight-line.**

b) The direction of the wind constantly deviates more than 45° from a line perpendicular to the main direction of the speed course.

c) **In the case of rain**

If these conditions arise during the flight **the contest director must interrupt the contest and** the competitor is entitled to a re-flight.

~~If the interruption lasts more than thirty minute s, then the starting list of the round is to be divided into groups and the score s (se e paragraph 5.8.12) are computed within the groups.~~

~~The results of an incomplete group are to be cancelled and this group has to fly from the beginning.final~~

~~The groups must be of equal size (+ - 1 competitor); the minimum competitors in one group is 10; the division of the starting list must be announced before the start of the round.~~

~~The round may continue if the conditions are a gain constantly within the limits.~~

In the case of foreseeable unstable weather conditions the whole group must be divided into groups of equal size (+-one (1) competitor) with a minimum number of competitors in one group of ten (10) before the round starts.

If the weather is stable during the whole round only one group is evaluated; if the competition must be interrupted more than thirty (30) minutes than the interrupted group must start from the beginning and the results are evaluated for each group (see paragraph 5.8.12).

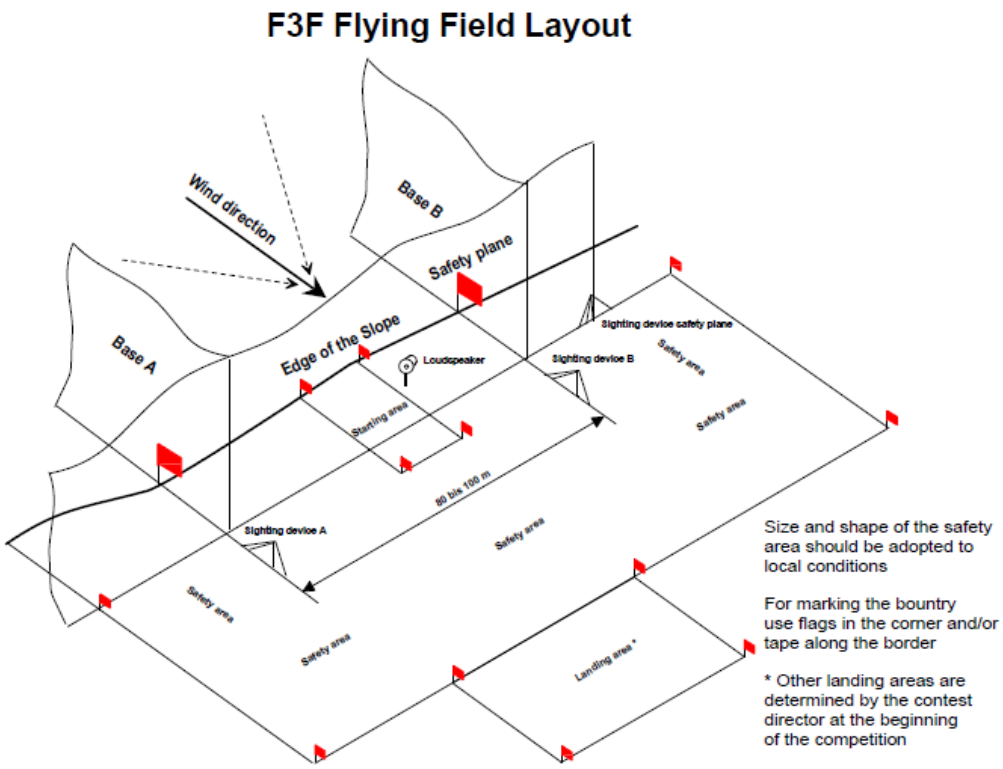
Reason: Also the rain influences the flight. Clearer wording concerning the interruption has been given.

i) 5.8.17 Site **Germany**

Add a new heading 5.8.17. Site together with the diagram as follows:

5.8.17 Site

The diagram of **F3F Flying Field Layout** follows:



F3J – Thermal Duration Gliders (rule changes permitted at 2016 Plenary)

j) 5.6.3. Contest Flights **Germany**

Amend paragraph 5.6.3.1 a) and b) as follows with consequential deletion of the second sentence in 5.6.11.1 a):

5.6.3. Contest Flights

5.6.3.1. a) ~~The competitor will be allowed a minimum of five (5),~~ **A minimum of four (4)** ~~preferably more~~ ~~official flights~~ **qualification rounds must be flown for the competition to be valid. If more than seven qualification rounds are flown, then the lowest score will be discarded before determining the aggregate score.**

b) The competitor ~~will be allowed~~ **has** an unlimited number of attempts during the working time.

c) There is an official attempt when the model aircraft has left the hands of the competitor or those of a helper under the pull of the towline.

d) In the case of multiple attempts, the result of the last flight will be the official score.

e) All attempts are to be timed by two stopwatches. If no official time has been recorded, the competitor is entitled to a new working time according to the priorities mentioned in paragraph 5.6.4.

Reason: At competitions with a big number of competitors and bad weather conditions, often five rounds can´t be flown; four qualification rounds will lead to a fair result.

The wording of paragraph 5.6.11.1a) (second sentence) is better placed in the modified paragraph above.

Technical Secretary's Note: See the next proposal k), for further proposed changes to 5.6.11.1. a)

k) 5.6.11 Final Classification **Germany**

Delete paragraph 5.6.11.1 a) (the second sentence has been proposed to be moved to 5.6.3.1 a) – see the above proposal) and amend paragraph b) as shown, renumbering it to a):

5.6.11. Final Classification

5.6.11.1. ~~a) If seven (7) or fewer qualifying rounds are flown, the aggregate score achieved by the competitor will be the sum of these scores for all rounds flown. If more than seven rounds are flown, then the lowest score will be discarded before determining the aggregate score.~~
~~b)~~ At the end of the qualifying rounds, a minimum of nine (9) competitors with the highest aggregate scores will be placed together in a single group to fly the fly-off rounds. At the ~~organiser's~~ discretion **of the contest director**, ~~if frequencies permit,~~ the number of competitors qualifying for the fly-off may be increased.

Reason: The wording was transferred to paragraph 5.6.3.1.a) because this is the right paragraph speaking about discarding of rounds. The decision should made by the contest director. Nowadays there are no restrictions by the used frequencies.

l) 5.6.12. Weather Conditions and Interruptions **Germany**

Insert a new section heading as shown above and a new paragraph to follow as shown below:
Renumber the section that follows 5.13.1 to 5.13.3.

5.6.12. Weather Conditions and Interruptions

The maximum wind speed for F3J contests is twelve (12) m/sec. The start of the contest must be delayed or the contest has to be interrupted by the contest director if the wind speed exceeds twelve (12) m/sec measured three (3) times for at least twenty (20) sec in a time interval of five (5) minutes at the start and landing area.

In the case of rain, the contest director can interrupt the contest. When the rain stops, the contest starts again with the group that was flying, which receives a reflight.

Reason: The different maximum wind speeds are documented in the ABR B.15.1.a) i) for the different classes but the values are not current; there are no limits concerning the new soaring classes F3F, F3K and perhaps also for other relatively new classes. In addition there is nothing written about the measurement procedure.

This important information for the contest director should be documented directly in the rules for the different classes. In this case the needed values can be found in a shorter time or they can be found at all.

The paragraph B.15.1.a) i) can stay as it is written but the special rules for our Soaring Classes should be implemented to the specific rule in the rule book.

Annex 3A – Rules for World Cup Events

m) Annex 3A – 3. Contests **F3 Soaring Subcommittee**

Add a sentence to paragraph 3 as shown below:

3. Contests: Contests included in the World Cup must appear on the FAI contest calendar and be run according to the FAI Sporting Code. In the contests competitors of at least two different nations must take part. **For the results to be counted as part of the World Cup the following number of rounds must be completed. F3B — 1 round and 1 task, F3F — 4 rounds, F3J — 4 preliminary rounds, F3K — 5 rounds all of different tasks.**

Reason: Necessary clarification. The rules for RC soaring classes state some numbers of rounds to be flown. For class F3J the number of preliminary rounds is not stated. The paragraph B.15. INTERRUPTION OF THE CONTEST of Volume ABR allows that at some conditions the results of a contest are valid even if the number of flown rounds is lower. To avoid the confusion the obligatory number of rounds for counting the contest into the World Cup should be defined.

Volume F4 Scale begins overleaf

14.11 Section 4C Volume F4 - Scale

F4

a) 6.1.9. Documentation (Proof of Scale) F4 Subcommittee

6.1.9.4 a) Photographic Evidence

Delete the last sentence of the paragraph:

……..posed alongside the full size prototype and the photo used as proof of colour. The use of photographs based on digital files which show evidence of being enhanced or manipulated shall result in disqualification. ~~The photographic evidence is the prime means of judging scale accuracy against the prototype.~~

Reason: All photographs are subject to the almost insurmountable problem of perspective. A photo is taken from a point in space and the bits of the image the object produces arrive from an infinite number of angles. This means the model should be judged from the scale distance that the photo was taken from for the judges to get the correct view, which is impossible since the original distance the photograph was taken from is unknown and judging is done from a fixed distance of 5 m.

b) 6.1.10. Judging for Fidelity to Scale and Craftsmanship F4 Subcommittee

Amend heading and text as shown:

6.1.10 Judging for Fidelity to Scale ~~and Craftsmanship~~

~~K-Factor~~	**K-Factor**
1. Scale Accuracy	
a. Side View	13
b. ~~End~~ **Front** View	13
c. ~~Plan~~ **Top** View	13
2. Colour	
a. Accuracy	~~3~~ **7**
b. Complexity	~~2~~ **3**
3. Markings	
a. Accuracy	~~8~~ **10**
b. Complexity	~~3~~ **5**
4. Surface Texture and ~~Scale~~ Realism	
a. Accuracy and Realism	7
b. Surface Complexity	~~7~~ **3**
5. ~~Craftsmanship~~ **Scale Detail**	
a. ~~Quality~~ **Accuracy**	~~12~~ **7**
b. Complexity	~~5~~ **3**

6. ~~Scale Detail~~ **Originality of Model Design and Construction** **16**
   ~~a. Accuracy~~ ~~9~~
   ~~b. Complexity~~ ~~5~~

Total K-factor K=100

Technical Secretary's note: *There will be a consequential change to 6.1.11. if the above is agreed. Delete the words as shown below to agree with the heading for 6.1.10. For Flying Scale Contests the combined Fidelity to Scale ~~and Craftsmanship~~ points shall be the aggregate sum of points awarded by the three static judges.*

Reason:
1. The most important identifiers of any aircraft in a line-up are the shape of the aircraft, the markings and their colours. The K-factors of these items are adjusted accordingly.
2. Scale Accuracy terms and terms under 4 to be changed to give uniformity of terminology between classes.
3. In order to reduce the subjective items in the evaluation to make the evaluation as objective as possible, the totally subjective item "Craftsmanship" has been deleted. The criteria for evaluating Craftsmanship in the judge's guide are all covered under the headings "Surface Texture", "Realism" and "Scale Detail". The contestant should not be rewarded or penalised twice for the same aspect.
4. The item "Originality of Model Design and Construction" is proposed in order to clarify the effect of different levels of compliance with the 'Builder of the Model Rule".

c) 6.1.11. Static Scoring **F4 Subcommittee**

Add the new paragraph (as shown) below the existing paragraph:

Normalisation:

The total of the competitors' static scores will be normalised to 1000 points as follows:

$$\text{Static Points}_x = S_x / S_w \times 1000$$

Where:

Static Points_x = Normalised Static Score for competitor x
S_x = Static Score for competitor x
S_w = Highest Static Score.

Reason: Normalisation of scores is in line with many other classes. Static scores generally are higher than flight scores. This is perceived as upsetting the 1:1 ratio between static and flying scores. Normalisation of both static and flight scores will ensure that the 1:1 ratio between static and flight scores is maintained. It will also resolve differences between flight judging panels when two flight lines are utilised.

d) 6.1.13. Builder of the Model **F4 Subcommittee**

Add the following paragraph at the end:

Copies of the Declaration Forms of all contestants shall be made available for examination by all contestants. If a contestant or number of contestants disagree with what has been claimed by a contestant, he/they may lodge an official protest by the normal procedure together with clear proof of their claim within twenty four hours of the publication of the forms. The protest is then handled by the jury as per normal procedure and they decide on the validity of the protest and a suitable sanction.

Reason: Clarification of how to handle false declarations. The function of the static judges is to judge the models according to the documentation that is provided by the contestant and to decide on an Originality Score according to the guidelines in the rules. The rules prohibit the static judges to use their own knowledge of a specific prototype in their judgement. The decision regarding the validity of the information supplied to the judges and the extent of penalties for submitting false information should rest with the jury.

e) 6.1.14. Scale Detail Demonstrations F4 Subcommittee

Add a new paragraph (6.1.14.) below 6.1.13. as follows:

6.1.14. Scale Detail Demonstrations

The model should be presented for static judging as if it were in normal flying configuration with the landing gear in the down position. Only items operable from the cockpit of the prototype are allowed to be displayed. These include all control surfaces, all lift enhancing devices (flaps, slats etc.). Also included are opening canopies and landing gear doors. All these items may be positioned by hand only. The following devices may not be operated or demonstrated during any part of static judging: lighting systems, sound systems, inspection panels, maintenance panels, gun access panels, refuelling panels, access ladders, tail hooks, emergency generators, Ram air turbines etc.

Reason: Clarification: There has been a movement to develop all kinds of 'gimmick' details that cannot be judged as static details as no provision for judging of 'working' details exist. This fad was driven to extremes at the 2013 Jet World Masters with all kinds of 'smoke and mirror' displays. This is a pre-emptive rule addition since a significant number of jet pilots also attend F4C and H events. These are flying scale contests and not IPMS events.

F4C

f) 6.3.6. Flight F4 Subcommittee

Amend the paragraph as below:

6.3.6. Flight

6.3.6.1. Take-off ..... K = ~~11~~ **7**
6.3.6.2. Option 1 ..... K = 7
6.3.6.3. Option 2 ..... K = 7
6.3.6.4. Option 3 ..... K = 7
6.3.6.5. Option 4 ..... K = 7
6.3.6.6. Option 5 ..... K = 7

6.3.6.7. Option 6 ..... K = 7
6.3.6.8. Option 7 ..... K = 7
6.3.6.9. Option 8 ..... K = 7
6.3.6.10. Approach and Landing ..... K = ~~11~~ **7**
6.3.6.11. Realism in flight
a) Model Sound…… K = ~~4~~ **2**
b) Speed of the model aircraft ..... K = ~~9~~ **7**
c) Smoothness of flight ..... K = ~~9~~ **7**
d) Choice of Options…… K = 7
e) Composition of Flight…….. K = 7
Total K Factor ..... K = 100

Notes: The flight schedule must include the two manoeuvres “Figure Eight” and “Descending 360° Circle” to be accepted as complete.

The scale of the model aircraft and the cruising or maximum speed of the prototype must be stated on the example Flight Score Sheet (Annex 6E.2.)

Only one attempt is permitted for each manoeuvre, the only exception is the procedure of getting a model aircraft airborne, as defined in 6.3.5.b

Reason: Although par. 6C.3.7 Optional Manoeuvres reads: “The selection of optional manoeuvres should demonstrate the fullest possible capabilities of the aircraft subject type modelled.” Repeated rule changes have left no item to score this requirement. The item “Model Sound” generally results in rewarding the contestant for something that he has bought (the motor) rather than some skill he has exhibited. The marks awarded for this item as well as the other reductions are done to free up K-factor points for the new item “Flight Presentation” which reward the contestant for skill exhibited.

g) 6.3.9. Flight Score **F4 Subcommittee**

Add additional paragraph as shown, below existing paragraph:

Normalisation:

The total flight score of each competitor for each round will be normalised to 1000 points as follows:

$$\text{Flight Points}_x = F_x / F_w \times 1000$$

Where:
Flight Points_x = Normalised Flight Score for competitor x
F_x = Flight Score for competitor x and
F_w = Highest Flight Score.

Reason: Normalisation of scores is in line with many other classes. Static scores generally are higher than flight scores. This is perceived as upsetting the 1:1 ratio between static and flying scores. Normalisation of both static and flight scores will ensure that the 1:1 ratio between static and flight scores is maintained. It will reduce differences between rounds when greatly differing conditions are experienced and also reduce differences between flight judging panels when two flight lines are utilised.

h) 6.3.10. Final Scoring **F4 Subcommittee**

Amend paragraph as follows:
For each competitor, ~~A~~ add **the normalised static score** ~~points~~ earned in 6.1.10. to the average **of the normalised** score**s** of the two best flights under 6.3.9. If the competitor has achieved only one flight, the **normalised** ~~points~~ **score** awarded for that flight will be divided by two.

If for any cause beyond the control of the organisers (eg. B.11.1.) less than three official rounds can be flown, the scoring shall be completed as follows:

a) If two rounds are flown, the average **of the normalised scores** of the two flights as in 6.3.9. ~~is~~ **will be** used.
b) If only one round is flown, the single **normalised** flight score of that one round ~~is~~ **will be** recorded.
c) The scores in an official round can be recorded only if all competitors had equal opportunity for a flight in that round.

Reason: Clarification regarding how the normalised static and flight scores are to be implemented.

F4H – Stand-Off Scale

i) 6.9.5. Static judging K-Factors **F4 Subcommittee**

Amend heading and text as follows:

6.9.5 Static ~~j~~ Judging ~~K – Factors~~

Item	**K-factor**
Scale Accuracy ~~– top view K = 6~~	
Side view	K= ~~6~~ **13**
Front view	K= ~~6~~ **13**
Top view	**K=13**
~~Originality of model Design & Construction~~	~~K = 5~~
Colour ~~and Markings Accuracy K = 10~~	
Accuracy	**K=7**
Complexity	**K=3**
~~Colour and Markings Complexity K = 5~~	
Markings	
Accuracy	**K=10**
Complexity	**K=5**
Realism	K = ~~12~~ **16**
Originality of Model Design & Construction	**K=20**
Total	K = ~~50~~ **100**

Normalisation:

The total of the competitors' static scores will be normalised to 500 points as follows:

$$\textbf{Static Points}_x = S_x / S_w \times 500$$

Where:

Static Points$_x$ = Normalised Static Score for competitor x
S_x = Static Score for competitor x and
S_w = Highest Static Score.

Reason:

1. The most important identifiers of any aircraft in a line-up are the shape of the aircraft, the markings and their colours. The K-factors of these items are adjusted accordingly.

2. The order of items to be scored is adjusted to follow the same order as in F4C.

3. Normalisation of scores is in line with many other classes. Static scores generally are higher than flight scores. This is perceived as upsetting the 1:2 ratio between static and flying scores. Normalisation of both static and flight scores will ensure that the 1:2 ratio between static and flight scores is maintained.

j) 6.9.5. Static judging K-Factors **Poland**

Amend the K-Factors as shown below:

Scale Accuracy – top view	K = ~~6~~ **4**
Side view	K = ~~6~~ **4**
Front view	K = ~~6~~ **4**
Originality of model Design & Construction	K = ~~5~~ **3**
Colour and Markings Accuracy	K = ~~10~~ **5**
Colour and Markings Complexity	K = ~~5~~ **3**
Realism	K = ~~12~~ **7**
Total	K = ~~50~~ **30**

Reason: The class F4H should prefer very good pilots. The model must have acceptable resemblance to a prototype. The ratio, the scale score, the flight score changes from 50/100 to 30/100 with preferring the flight. Under actual rules there is no enough acceptable difference between F4C and F4H class.

k) 6.9.6.1 Photographic Evidence **F4 Subcommittee**

Amend paragraph as follows:

A minimum of one (1) photograph or printed reproduction~~s~~ and a maximum of five (5) **photographs or printed reproductions** of the prototype, one or more of which must show the actual subject aircraft being modelled. **At least one photograph must show the whole aircraft. Photographs of the model are not permitted unless it is posed alongside the full size prototype modelled for proof of colour. Photographs which show evidence of digital manipulation shall result in disqualification.** ~~Ideally these must show the entire aeroplane and show the three aspects; side view; front view and top plan view (the underneath plan view will not be judged).~~ There is no requirement for close up or detailed photographs, but additional photographs (within the maximum of 5 total) can be used to support the three aspects if the outline needs clarification.

Reason: Clarification. This is to bring the requirements in line with the concept and spirit of F4H. At present, the paragraph states requirements that are effectively more demanding than that of F4C.

l) 6.9.7. Flying Schedule **F4 Subcommittee**

Add additional paragraph below present paragraph:

The Flying Schedule shall be the same as F4C (Paragraph 6.3. refers)

Normalisation:

The total flight score of each competitor for each round will be normalised to 1000 points as follows:

$$\textbf{Flight Points}_x = F_x / F_w \times 1000$$

Where:
Flight Points$_x$ = Normalised Flight Score for competitor x
F_x = Flight Score for competitor x and

F_w = Highest Flight Score.

Reason: Normalisation of scores is in line with many other classes. Static scores generally are higher than flight scores. This is perceived as upsetting the 1:2 ratio between static and flying scores. Normalisation of both static and flight scores will ensure that the 1:2 ratio between static and flight scores is maintained. It will reduce differences between rounds when greatly differing conditions are experienced and also reduce differences between flight judging panels when two flight lines are utilised.

m) 6.9.8. Final Scoring **F4 Subcommittee**

Amend the paragraph as follows:

For each competitor, ~~A~~add **the normalised static score** ~~points~~ earned in 6.9.5 to the average **of the normalised** score**s** of the two best flights under 6.9.~~8~~ **7.** If the competitor has achieved only one flight, the **normalised** ~~points~~ **score** awarded for that flight will be divided by two.

If for any cause beyond the control of the organisers (eg. B.11.1.) less than three official rounds can be flown, the scoring shall be completed as follows:

a) If two rounds are flown, the average **of the normalised scores** of the two flights as in 6.3.9. ~~is~~ **will be** used.

b) If only one round is flown, the single **normalised** flight score of that one round ~~is~~ **will be** recorded.

c) The scores in an official round can be recorded only if all competitors had equal opportunity for a flight in that round.

Reason: Clarification regarding how the normalised static and flight scores are to be implemented.

F4 Annexes

n) Annex 6A – Class F4 Judges' Guide for Static Judging — F4 Subcommittee

Amend the heading as shown below:

Annex 6A Class F4**B, C and G** Judges' Guide for Static Judging

Reason: Clarification. There already exists an Annex 6F for F4H Static Judging.

o) 6A.1.9. Documentation for Proof of Scale — F4 Subcommittee

Amend the paragraph as follows:

The minimum documentation as stated in 6.1.9.4. must be provided. Failure to comply shall result in penalty marks as follows:

a) Less than 3 full photos of prototype:	ZERO points for Scale Accuracy (6.1.10.1) Possible downmarking of Realism (6.1.10.4) ~~Possible downmarking of Craftsmanship (6.1.10.5)~~ Possible downmarking of Scale Detail (6.1.10.~~6~~ **5**)
b) Missing or unauthorised drawings:	ZERO points for Scale Accuracy (6.1.10.1)
c) No photo of subject aircraft:	ZERO points for markings (6.1.10.~~2~~ **3**) Possible downmarking for Realism (6.1.10.4) Possible downmarking of Scale Details (6.1.10.~~6~~ **5**)
d) Incomplete colour documentation:	ZERO points for Colour (6.1.10.~~3~~ **2**)

The documentation stated above is the absolute minimum required for participation. In reality more comprehensive evidence is needed to assess the model aircraft relative to the prototype. As the full size aircraft cannot be presented it follows that the photographic documentation provided should be as comprehensive as possible if a high score is to be achieved.

All documentation should relate to the subject aircraft whenever possible; variations from this must be clearly marked if not otherwise obvious. All relevant notes and corrections to the documentation should be in English.

The static judges have a difficult task to do in a short period of time. Documentation should therefore be presented in a format that can be quickly and accurately assessed. Superfluous or contradictory evidence should be avoided. The documentation ~~should~~ **must** be presented ~~on separate sheets to avoid the requirement for judges to continually turn pages for cross-references. A stiff A2 size sheet is considered to be the largest that may be comfortably handled by the judges. It will assist the judges if the documentation is presented in a format that reflects the sequence of the judging aspects, eg: Side view, End view, Plan view, Markings, Colour, etc.~~ **as a top hinged bound volume in landscape format (calendar format) with a maximum size of A3. The sequence of pages must reflect the sequence of judging aspects eg: Side View, Front View, etc. If a specific photograph is required to document more than one of the judging aspects, it must be repeated on the relevant page to avoid that the judges have to continually turn pages back and forth to cross reference.**

Reason: Deletion and change under a) and changes under c) and d) are consequential changes if changes to 6.1.10 are adopted.
Amendments to the last paragraph are a clarification of the requirements for the

presentation of documentation. It has repeatedly been found in practice that loose sheets in any form and documentation on sheets larger than A3 size are unmanageable under contest conditions. They soon become mixed up especially when two judging panels are involved, leading to a waste of time and frustration for the judges. Cross referencing to previous or later pages lead to the same result.

p) 6A.1.10.1 Scale Drawings F4 Subcommittee

Amend the section of the paragraph shown below:

~~The photographs are the prime means of determining the accuracy and realism~~ **The drawings are the primary means of determining the accuracy of the** model relative to the full size aircraft~~. and must always take precedence over drawings if there is any doubt concerning an item of scale accuracy. Caution should however be exercised when determining rigging angles using photographs that are taken at an oblique angle, as these might give the wrong impression. In this particular case the drawing may be a more appropriate reference for checking dihedral and incidence angles. The model should first be positioned in a pose similar to that in the best photograph and checked for any obvious discrepancies. This procedure is then repeated with other suitable photographs.~~

Then using ~~photographs~~ **the drawings** and ~~drawings~~ **photographs**, check:

Side view, this may be either left or right depending upon the ~~most suitable photograph~~. **drawings supplied.**

Reason: Clarification and consequential change if changes to par. 6.1.9.4 a) and b) are adopted.

q) 6A.1.10.4 Surface Texture and Scale Realism F4 Subcommittee

Amend the heading as shown and move the second paragraph to top and first paragraph to second position:

6A.1.10.4 Surface Texture and ~~Scale~~ **Realism**

Reason: Consequential Change if changes in 6.1.10 are adopted. Paragraphs rearranged to fall in line with heading.

r) 6A.1.10.5 Craftsmanship F4 Subcommittee

Delete heading and all text and replace with heading and text as indicated:

6A.1.10.5. ~~Craftsmanship~~ Scale Detail

~~This section deals with the skill, ingenuity, general finesse and complexity involved in the construction of the model aircraft.~~

~~Craftsmanship Quality:~~

~~The model aircraft should be checked for quality of workmanship, with particular reference to clean, sharp edges…….not been made by the competitor (see 6.1.9.4e) and adjust the marks awarded accordingly. The points that are awarded must again reflect the standard of documentation presented.~~

Check that items such as those listed are present on the model aircraft where applicable, and that they are accurately reproduced and correctly positioned.

Hatches	**Brake pipes**
Handles	**Landing gear springing**
Footsteps	**Tyre treads**
Doors	**Wing slots**
Armament	**Navigation and landing lights**
Bomb racks	**Pitot head**
Control cables	**Walkways**
Control horns	**Tanks**
Fairings	**Radiators**
Bracing	**Filler caps**
Turnbuckles	**Louvres**
Struts	**Cooling gills**
Lacing or stitching	**Mass balances**
Aerials	**Instrument panel**
Venturis	**Cockpit or cabin interior detail**

The points awarded should reflect both the accuracy and the quantity of scale detail present.

Scale Detail Accuracy:
The documentation presented should clearly show the features that are being assessed. Higher marks should be awarded to those competitors who accurately reproduce these items.

Scale Detail Complexity:
A well-documented highly detailed model aircraft should score proportionately more than a model aircraft with little detail, even if the full-size prototype is itself sparsely detailed. Judges should ensure when marking this aspect that they are relating to the complexity of detail actually on the model aircraft, not just awarding marks for what is present on the prototype.

Reason: Consequential Change if changes in 6.1.10 are adopted.

s) 6A.1.10.6 Scale Detail **F4 Subcommittee**

Delete heading and text and replace with new heading and text as below:

6A.1.10.6 Originality of Model Design and Construction

This is an assessment of the extent to which the scale accuracy of the model is due to the effort of the competitor by evaluation of the competitor's Declaration. The following breakdown of categories is suggested:

a) Competitor designed and built	**10 points**
b) Scratch built from commercial plans	**8 points**
c) Built from a traditional kit	**6 points**
d) Built from substantially pre-made parts	**4 points**
e) Modified Almost Ready to Fly Kit	**2 points**
f) Unmodified Almost Ready to Fly Kit	**0 points**

Depending on the competitor's Declaration regarding self-made and modified parts, intermediate points may be awarded at the discretion of the static judges.

Reason: Consequential Change if changes in 6.1.10 are adopted.

t) Annex 6C Class F4C Judges' Guide – Flying Schedule F4 Subcommittee

6C.3.6.11 Realism in Flight

Insert amendments above and below last paragraph as indicated:

Regarding d) Choice of Options: The score should reflect how well the choice of options succeeds in demonstrating the aircraft to 'the fullest possible capabilities of the aircraft type modelled' exhibiting a variety of manoeuvres so that for example there are not four Cuban 8 variants selected.

Some original prototypes would have little or no aerobatic capability. These are aircraft designed with limited manoeuvrability where the original prototypes of which were restricted by the manufacturer or licensing government agency. Examples are touring aircraft, passenger and cargo aircraft and heavy military transports and bombers. The optional manoeuvres are included under 6.3.7. to cater for such subjects. These aircraft should still be considered for high marks in this section if the performance of the original prototype genuinely limits them to such manoeuvres. Conversely, if aircraft with greater manoeuvrability and performance choose these options when the original prototype would be capable of much more, then low marks should be awarded in this section.

The score for e) Composition of Flight should reflect the whole choreography of the flight regarding upwind and downwind manoeuvres, high and low manoeuvres as well as a minimum of free passes to give an interesting well rounded demonstration.

Reason: Consequential clarification if the proposal regarding 6.3.6 Flight is accepted.

u) 6C.3.7. W. Wingover F4 Subcommittee

Amend the paragraph as below:

The model aircraft approaches in straight and level flight on a line parallel with the Judges' line. After passing the judges' position a smooth climbing turn is commenced away from the judges. At the apex of the turn, the model should track 90° to the entry track and the bank angle should be **appropriate to the capability of the prototype, but usually** ~~at least~~ **no more than** 60º for a non-aerobatic model and at least ~~90°~~ **60º** for an aerobatic model. The height gain should be appropriate to the capability of the prototype. The model then continues on a mirror image of the entry flight path and recovers to straight and level flight at the same height but on the opposite heading to the entry and on a line displaced away from the judges.

A low powered aircraft would be expected to execute a shallow dive at full throttle in order to pick up speed before commencing the manoeuvre.

Reason: Clarification of the text in the present description in order to bring it in line with full size practice. This affirms the relationship between scale flying and full size practice while still allowing the competitor to document that the prototype he has modelled is/was rated to exceed the 60^{o} limit.

v) Annex 6F F4H – Judges Guide for Static Judging **F4 Subcommittee**

6F.2 Scale Accuracy (Outline)

Amend the first sentence as follows:

~~As with all static judging, photographs are the prime~~ **The three view drawings are the primary** means of assessing scale accuracy. ~~If good photographs are provided which show side view, front view and plan view, there will be no need to refer to the drawings.~~ Paragraph 6A.1.10.1 provides further advice on assessing scale accuracy.

Reason: Consequential change to bring the paragraph in line with paragraph 6.9.6.1 of the F4H rules and the revised paragraph 6A.1.10.1 which is mentioned in the next sentence.

w) 6F.3. Originality of Model Design and Construction **F4 Subcommittee**

Delete items i) to iv) and replace with the following:

b) The following should be used as a guide:

i)	**Competitor designed and built**	**10 points**
ii)	**Scratch Built from commercial plans**	**8 points**
iii)	**Built from a traditional kit**	**6 points**
iv)	**Built from substantially pre-made parts**	**4 points**
v)	**Modified ARTF**	**2 points**
vi)	**Unmodified ARTF**	**0 points**

Depending on the declaration regarding self-made and modified parts, intermediate points may be awarded at the discretion of the static judges.

Reason: Consequential change to bring the paragraph in line with the amended paragraph 6A.1.10.6. and the rest of the F4 rules.

x) Annex 6G Class F4K Judges' Guide **F4 Subcommittee**

6G.2.2A Take off with 90° turn and 180° turn

Amend text and replace diagram as shown below:

A TAKE OFF WITH 90º TURN AND 180º TURN (MANDATORY)

To start the manoeuvre, take off smoothly from the centre of the helipad. The model must ascend vertically over the centre of the helipad until the skids or landing ~~guides~~ **gear** are at ~~eye level~~ **a height of two metres**, with tail rotor facing the centre judge (Figure 1). Hold this position for a minimum of 10 seconds, followed by a 90º clearing turn to the left or right side. Hover in this position for 5 seconds followed by

a 180º clearing turn **in the opposite direction followed by a 5 second hover in this position.** ~~that is also held for 5 seconds~~. (~~View~~ See figures 2A and 2B)

Reason: **Clarification**. Changes made to clarify conflicting and confusing details between description, diagram and list of errors.

Note: Diagram follows:

Figure 1:

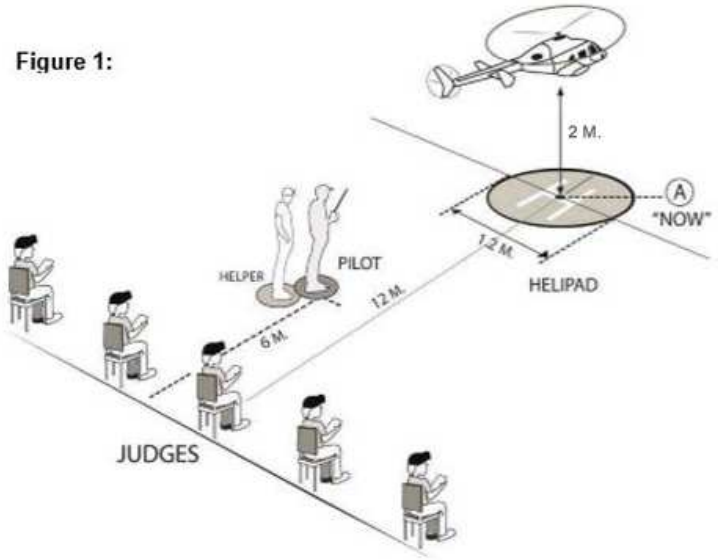


Figure 2(A):

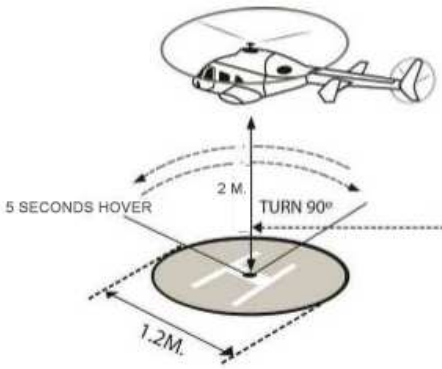
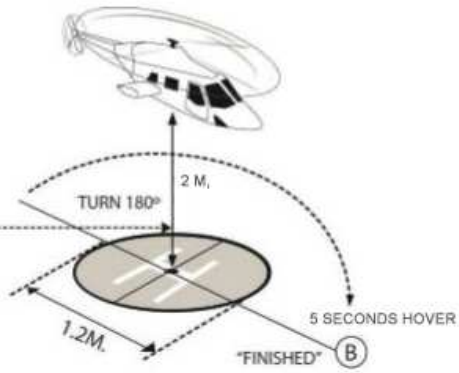


Figure 2(B):



y) Annex 6G Class F4K Judges' Guide **F4 Subcommittee**

6G.2.4E Flight in Triangular Circuit

Amend text and replace diagram as shown below:

E FLIGHT IN TRIANGULAR CIRCUIT

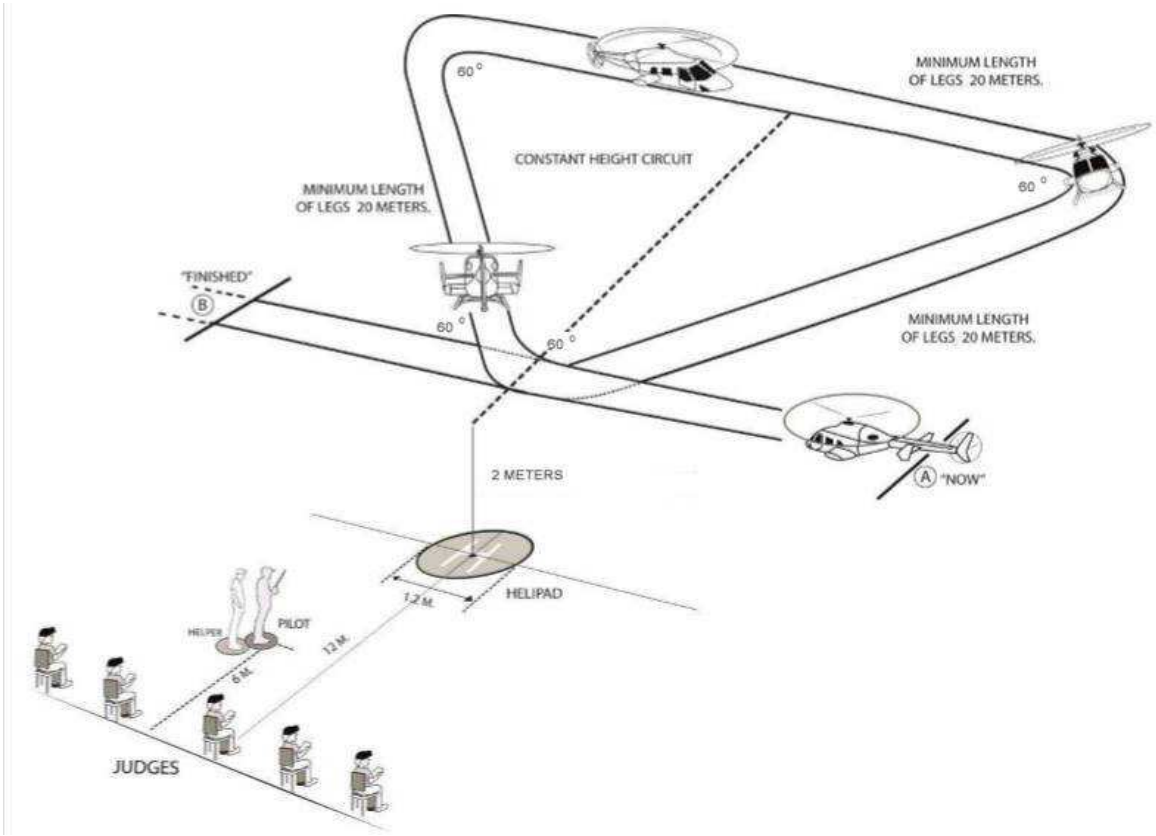
The model aircraft approaches in a straight and level flight at a maximum height of 2 metres to a point directly in front of the judges, then turns away to track **60º** away from the judges' line, flies straight and level for a minimum of ~~30~~ **20** metres, turns to track parallel with the judges' line, flies a further minimum of ~~30~~ **20** metres, then

turns to track towards the judges and flies a further minimum of ~~30~~ **20** metres to a position above the centre of the landing area, which completes an equilateral triangle (a triangle with sides of equal length **and included angles of 60°**), before making a final turn to intercept the original entry track.

Reason: **Clarification**. Changes made to clarify conflicting and confusing details between description, diagram and list of errors.

Note: Diagram follows.

***Angles of 60°** have been marked.*



z) Annex 6G Class F4K Judges' Guide **F4 Subcommittee**

6G.2.4F Flight in Rectangular Circuit

Amend text and replace diagram as shown below:

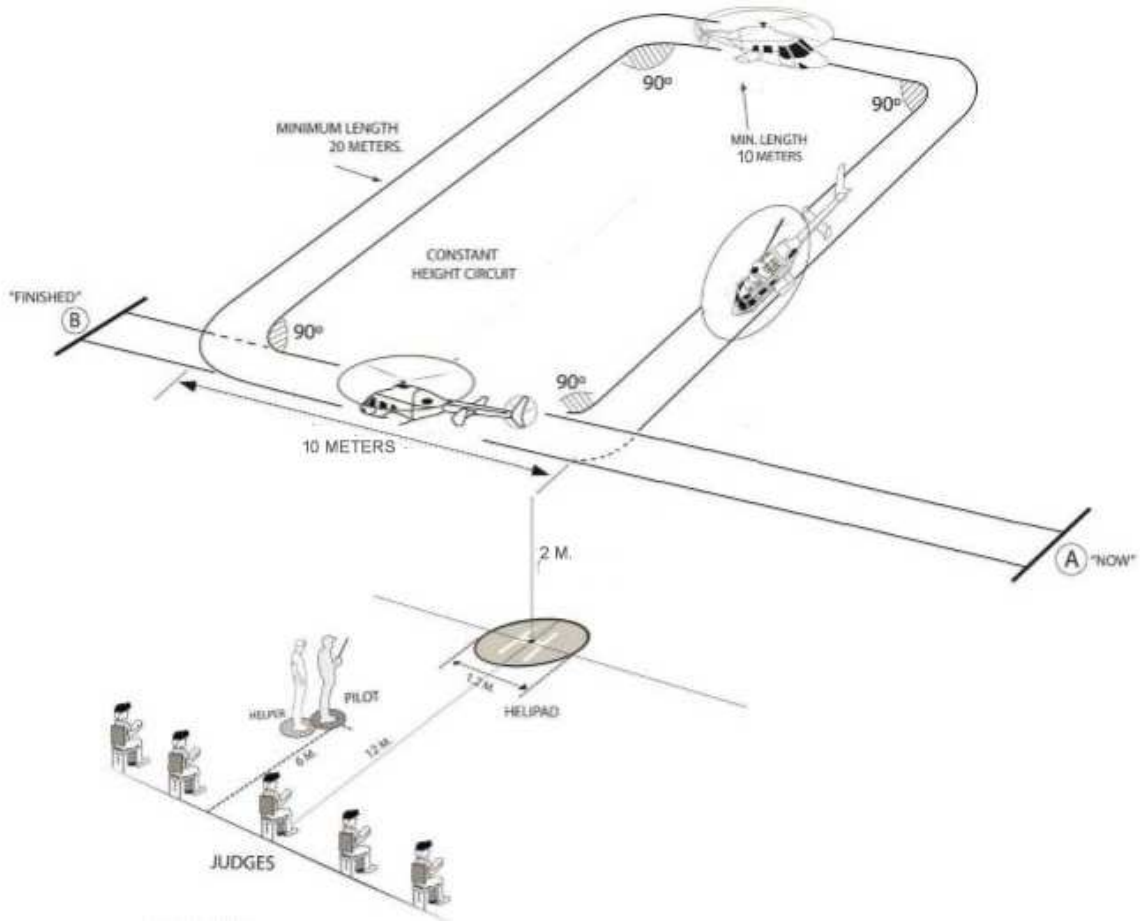
F FLIGHT IN RECTANGULAR CIRCUIT

The model aircraft approaches in straight level flight at ~~eyes level~~ **a maximum height of 2 metres** to a point directly in front of the judges, then continues for a minimum of ~~5~~ **10** metres before it turns away to track 90º from the judges' line and flies straight and level for a minimum of ~~10~~ **20** metres before turning to track parallel with the judges' line for a further minimum of ~~5~~ **10** metres, turns to track directly towards the judges for a minimum of ~~10~~ **20** metres, to a point in front of the judges,

before completing a final turn to intercept the original entry track. This manoeuvre describes a rectangle over the ground.

Reason: Clarification. Changes made to clarify conflicting and confusing details between description, diagram and list of errors.

Note: Diagram follows:



Volume F5 Electric begins overleaf

14.12 Section 4C Volume F5 – Electric

F5 – General Rules

a) 5.5.1.4 Energy Limiter **F5 Subcommittee**

Amend the paragraph as follows:

5.5.1.4 Energy Limiter/Logger

The energy limiter/logger is located in the electric circuit between the battery and the motor. In the case of a limiter, the interruption must ~~either~~ persist ~~permanently or~~ for a defined period of time. **Logger data must be retrieved immediately after the flight.** ~~Instead of an energy limiter,~~ The contest organiser may supply a “real time radio telemetry logger” that transmits logged data to the ground. The energy data and motor-run data shall be made available to the pilots.

Reason: Better transparency: The limiter is used for F5D pylon racers and the logger for F5B gliders.

b) 5.5.1.5 Procedure for Limiter Checking **F5 Subcommittee**

Insert addition in heading. Insert next sentence. Delete text that is no longer required. Renumber paragraph c) to b):

5.5.1.5 Procedure for Limiter and Logger Checking

The limiters and loggers must be approved by the EDIC (ELECTRONIC DEVICES IN COMPETITIONS WORKING GROUP)

a) The general procedure of limiter checking follows B.17. in Section 4B, General Rules for International Contests.

~~b) The check shall be carried out immediately after landing. All limiters/loggers shall be tested using the same method. The limited checking device may be an external device or a device that is carried within the model.~~

~~c)~~ **b)** The organiser will check if the limiter/logger is correctly connected to RX, LiPo pack and ESC. There must not be any type of "jumper" present in the RX cable or on the current sensor.

~~d) The limiter in each model should be provided with cables and 6 mm connectors, so that it can easily be checked in series with the checking system. In cases where the limiter device has other types of connectors, the competitor must provide adapters to match the 6 mm connectors used by the organiser.~~

~~e) JR/Futaba connectors should be provided on the limiter, or adapters, so that the receiver output and ESC input connections can be made to the test unit.~~

~~f) A variable current load should be used, simulating, as far as possible, a typical flight.~~

~~g) The organiser shall use SM UniLog or similar devices as energy counters for measurements in each category.~~

~~h) A tolerance of 2% on the measurement of the limit is permitted.~~

~~i) The competitor may check his limiters prior to and during the contest, but he must provide a fully charged lithium battery as a power source.~~

Reason: Approval by the EDIC instead of complicated limiter checking. Makes limiter/logger checking easier and much shorter.

c) 5.5.1.5 Procedure for Limiter Checking F5 Subcommittee

Add a new point c). This is a follow-on proposal from the previous proposal where point c) was renumbered as b):

5.5.1.5 Procedure for Limiter and Logger Checking

c) Malfunction of limiter/logger:

- limiter/logger given by the organiser, the competitor will have a reflight.

- limiter/logger of the competitor, a penalty in F5B/F of 100 p and in F5D of 10% of the flyers time must be given.

Only one of these two systems can be used at a contest. The organiser must decide which of these two systems he will use and indicate clearly in the invitation.

Reason: The technical equipment of the competitor is one's own responsibility. The competitor has no influence on the technical equipment of the organiser.

Technical Secretary's Note: If this addition to the general rule is agreed, note the consequential effect (and potential conflict) to Item f) in F5B regarding malfunction of an organiser's logger.

F5A – Electric Powered Aerobatic Model Aircraft

d) 5.5.3 Class F5A Electric Powered Aerobatic Model Aircraft F5 Subcommittee

Delete the whole class F5A and consequentially Annex 5A, plus any references in the contents etc.:

~~**5.5.3 Class F5A Electric Powered Aerobatic Model Aircraft**~~
Delete pages 14 – 17 and Annex 5A pages 44 - 46.

Reason: Not enough interest.

F5B – Electric Powered Motor Gliders

e) 5.5.4.1 Definition F5 Subcommittee

Amend section b) as follows:

b) Model Aircraft Specification:

Minimum weight without battery	1000 g
Minimum surface area	26.66 dm^2
Type of battery ~~Lithium-Polymer~~	**Any type of rechargeable batteries**

Maximum number of equivalent cells in series ~~10~~ **At any point in the flight the maximum voltage of the flight battery must not exceed 42 volts.**

Minimum weight of battery pack 450 g

The maximum amount of energy to be used in one flight is 1750 W/min. Anything over this will result in a deduction of 3 points per W/min over 1750.

~~Limitation of energy: by an electronic limiter/ logger~~

The amount of energy of one flight must be stored by a logger.

~~The limiter is checked by the organiser during the contest.~~

Reason: F5 must be open for new battery types. This is often not very clearly written on the battery packs. Limiter is replaced by logger.

f) 5.5.4.1 Definition F5 Subcommittee

Delete section c) and replace with the two paragraphs as shown below. Insert new paragraphs d) to f) and renumber the existing paragraphs g) to i).

c) ~~If a logger is used, the data is retrieved during or immediately after the flight.~~

Loggers can be provided by the event organisers and will be drawn by the competitor before the flight. If loggers are provided by the organisers then this is the logger that will be used by the competitor for the flight/event.

Once drawn, the competitor will have at least 15 minutes to fit the logger into the plane(s).

Immediately after landing, the W/min consumed will be read from the logger which was used during the flight, either by means of telemetry or direct cable connection to the logger.

If no W/min are available for reading then a zero score is received for that flight.

d) The competitor must return the logger(s) after their flight - max 15 minutes.

e) The competitor is responsible for ensuring the logger device is working as expected. In the event of a failure of the offical logger equipment the competitor will not receive a reflight.

f) The organisers will check each logger prior to it going out to a new competitor to ensure that it is in full working order.

Reason: Limiter is replaced by logger.

Technical Secretary's Note: Refer back to Item c), noting there is no conflict with Item f) regarding malfunction of an organiser's logger.

g) 5.5.4.2 Course Layout and Organisation F5 Subcommittee

Add the word 'minimum' as shown:

5.5.4.2 Course Layout and Organisation

a) Two imaginary vertical planes at a distance of 150 m from each other determine the turnlines and are named Base A and Base B. A safety plane is established perpendicular to these planes. The safety plane is endless. The sighting devices used to detect the crossing of the Bases A and B are placed at a **minimum** distance of 5 m from the safety plane outside the course.

Reason: Lengthen the distance of the sighting device to the safety line, if possible.

h) 5.5.4.3 Scoring Switzerland

Refer to Agenda Annex 7e 'About F5B Scoring' for a detailed explanation.

Modify the scoring. Discard normalisation as follows. Renumber part c) as b):

a) For each flight the total score is compiled by adding the partial score A and B for each competitor;

~~b) The individual result of each round is normalised to the points of the best competitor of that round.~~

~~P round = 1000 x (individual points / points of the best competitor)~~

~~The normalised points shall be recorded to the first decimal number.~~

~~c)~~ **b)** In order to decide the winner when there is a tie, the best discarded flight shall be taken into account.

Reason: Normalisation based on statistically extreme values is wrong and leads to unfair scoring especially with small a number of competitors. In competitions with large numbers of participants normalisation is completely obsolete and complicates scoring artificially. Normalisation can make sense when competitors fly in groups, which is not the case in F5B. Please refer to the presentation about F5B scoring with an analysis of WC2014 and a National Championship.

i) 5.5.4.5 Distance Task F5 Subcommittee

Add a new point concerning crossing at Base A:

Flying out of the distance course at Base A the signal only needs to be given when the model aircraft is coming directly from Base B.

Reason: After the model aircraft flies into the distance course with running motor and turns fast back, the timekeeper at Base A is very often not able to give again the signal.

Technical Secretary's Note: It is assumed that the above is intended to be a new point g).

j) 5.5.4.5 Distance Task The Netherlands

Amend point d) as follows to allow electronic devices to monitor the crossing of Base A and B:

d) A timekeeper **or electronic device** announces to the competitor when his model aircraft crosses the Base A and Base B. The absence of a signal will indicate that

the model aircraft has failed to correctly cross the base. The instruments used to check the crossing of the vertical plane must assure the parallelism of such planes.

Reason: Instead of a timekeeper, electronic devices can monitor passing of the bases. Development of such devices is in progress, rules should allow for such devices to be used as they can help avoid human errors (and thus reflights).

k) 5.5.4.5 Distance Task **Switzerland**

Amend point f) as shown. This is intended to lower the weight of the Distance task by reducing the number of points awarded per leg:

5.5.4.5 Distance Task

f) Every completed leg will be awarded ~~10~~ **5** points. When the model aircraft fails to complete at least one leg after either of the first two climbs, 30 points will be deducted from the score of this task; after 200 seconds of this task, which will be indicated by an audio signal, the duration task begins immediately.

Reason: The points given for the distance task make the duration task and landing completely obsolete. The analysis of more than 300 flights at the WC 2014 show how unbalanced the scoring between distance and duration task is. It is impossible even with a perfect flight (no lost points) in the duration task to gain back a single leg (smallest possible score step 10 points) lost during the distance task. 90% of all competitors score within 10 points during the duration task.

Lowering the points awarded per leg to 5 will reinstall the original definition of F5B: **5.5.4.1 Definition:** a) Definition: This contest is a **multi-task event** for RC Electric Powered Motor Gliders including two tasks: 1) Distance 2) Duration and landing

This proposal is part of a “package” (**see also Agenda Item l**)) which also suggests to modify the scoring scheme of the duration task with finer score steps for the landing and motor running time in order to generate a variation of the scores that become comparable with the variation of the scores in the distance task.

Please also refer to the presentation about F5B scoring (**Agenda Annex 7e**) with an analysis of WC2014 and a National Championship.

l) 5.5.4.6 Duration and Landing Task **Switzerland**

Amend sections of 5.5.4.6 as follows. This is intended to change the scoring of the duration task in order to get a finer scoring scheme and a larger variation of scores. See also Agenda Item k) above:

5.5.4.6 Duration and Landing Task

a) This task must be completed within 600 seconds from the moment the audio signal is given.

b) The competitor has to decide how much and how often he will switch on the motor.

c) The duration task score-keeping device keeps track of the motor run time as well as the glide time. Duration task scoring ends when the model aircraft comes to rest after landing.

d) Duration time is cumulative and one point will be awarded for each full second the model aircraft is **flying.** ~~gliding with the motor off~~. **1 Point will be deducted for each 0.5 second of motor running time.**

e) One point will be deducted for each full second flown in excess of 600 seconds.

~~f) Additional points will be awarded for landing; when the model aircraft comes to rest in the 30 m circle, 10 points will be given while coming to rest in the 20 m circle gives 20 points, and when coming to rest in the 10 m circle 30 points will be given. The distances are measured from the centre of the circle to the nose of the model aircraft.~~

f) A landing bonus will be awarded in accordance with distance from the launch/landing spot marked by the organisers according to the following tabulation:

Distance (m)	**Points**
Up to 1.5	**50**
3	**45**
4.5	**40**
6	**35**
7.5	**30**
9	**25**
10.5	**20**
12	**15**
13.5	**10**
15	**5**
Over 15	**0**

After the model has come to rest the fuselage must lie flat on the ground. If the nose penetrates into the soil and the tail remains more than 10 cm above the ground a penalty of 30 points will be given.

g) No additional points will be awarded if the landing occurs more than 630 seconds after beginning of this task (as per 5.5.4.6.a)).

h) Flying through or close to the distance course in a manner that interferes with another competitor's distance task flight will result in a penalty of 100 points deducted from the offending competitor's score of this round. This penalty can be applied by the contest director or a designated official.

Reason: The points given for the distance task make the duration task and landing completely obsolete. The analysis of more than 300 flights at the WC 2014 show how unbalanced the scoring between distance and duration task is. The new scoring scheme produces a larger variation of scores for the duration task and finer score steps for the landing.

This will help reinstalling the original definition of F5B: **5.5.4.1 Definition:** a) Definition: This contest is a **multi-task event** for RC Electric Powered Motor Gliders including two tasks: 1) Distance 2) Duration and landing.

This proposal is part of a "package" (**see also Agenda Item k**)) which also suggests to modify the scoring scheme of the distance task to generate a variation of the scores that become comparable with the variation of the scores in the distance task.

Please also refer to the presentation about F5B scoring (**Agenda Annex 7e**) with an analysis of WC2014 and a National Championship.

F5D – Electric Powered Pylon Racing Model Aircraft

m) 5.5.6.2 Technical Specification **F5 Subcommittee**

Add the minimum diameter of props to sub-paragraph a):

a) Model Aircraft

Minimum weight ready to fly: 1'000 g

Maximum surface loading: 65 g/dm^2

Minimum diameter of prop: 8 inches

Reason: Noise reduction to maintain our flying sites and keep it for training and competitions also for the future

n) 5.5.6.2 Technical Specification **F5 Subcommittee**

Amend the battery type in sub-paragraph b) as follows:

b) Battery

Battery Type: ~~Lithium-Polymer~~ **battery type approved by the EDIC**

~~Number of cells in serial connection: up to 5 (S)~~

Max. no load voltage: 21 V

Reason: F5 must be open for new battery types

o) 5.5.6.2 Technical Specification **F5 Subcommittee**

Add a new line to sub-paragraph c) as shown below:

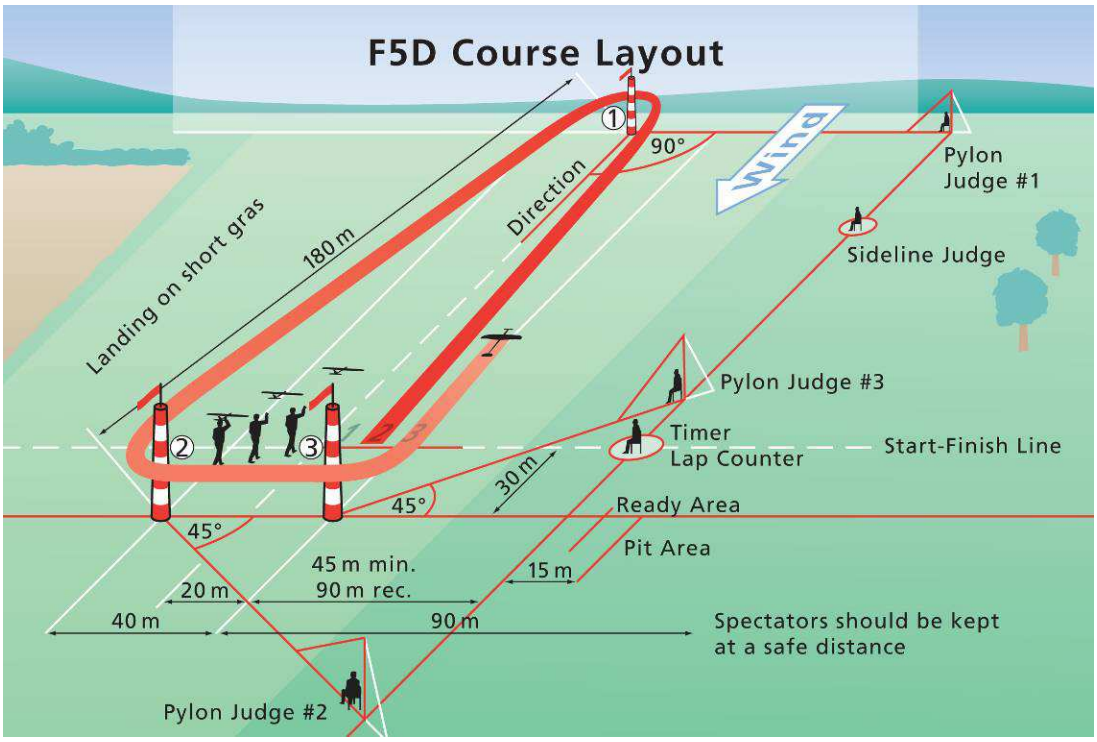
c) Energy Limiter

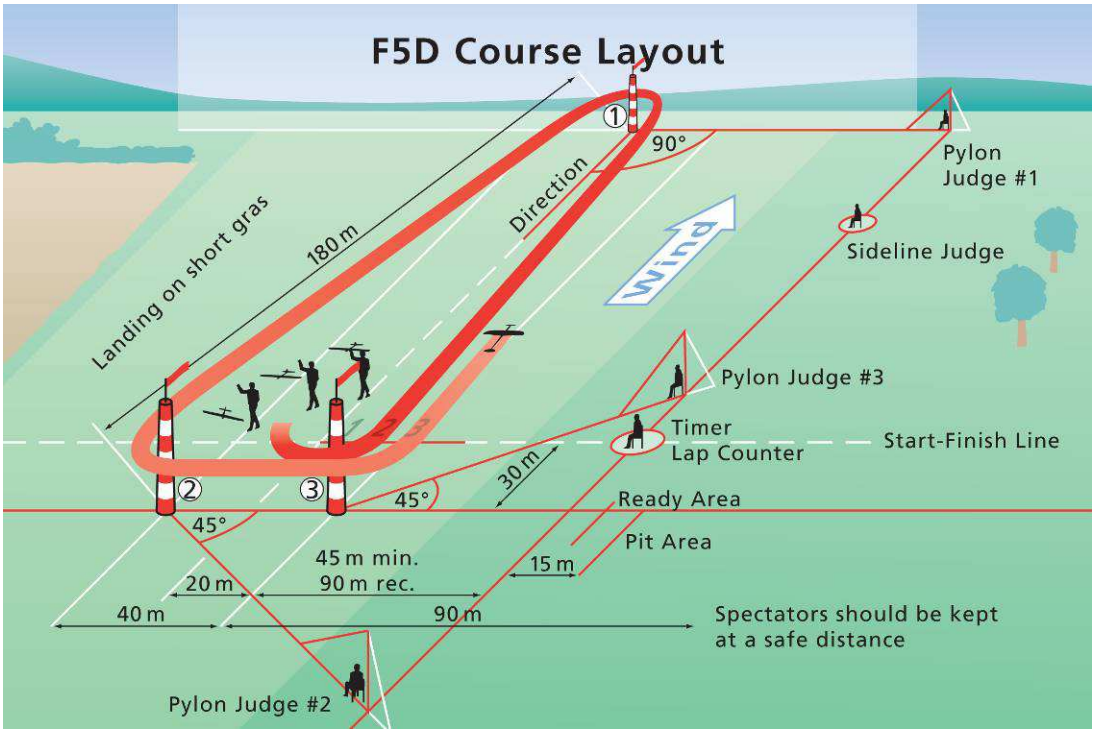
The interruption must persist for minimum period of 10 seconds. When the pilot has finished his race or has left the pylon course flight path the motor may be switched on again. **The EDIC approved limiters can be provided by the organiser and drawn by competitors before flights.**

Reason: This is a very easy and fair system. Same chance for all competitors.

p) 5.5.6.4 Racing Course and Specification **F5 Subcommittee**

Replace the current drawing by the two new ones as follows:





Reason: Clarification for starting procedure with tailwind.

F5E – Electric Solar Powered Model Aircraft (Provisional)

q) 5.5.7 F5E – ELECTRIC SOLAR POWERED MODEL AIRCRAFT (PROVISIONAL) **F5 Subcommittee**

Replace the current rule with the following new one:

Same rules as F5B, except:

5.5.7.1 Definition

a) This contest for radio controlled solar powered model aircraft is a distance task and landing event.

b) Model aircraft specifications

General characteristics: See para 5.5.1.3

Max. area of solar generator: 25 dm^2

Only monkristaline cells may be used

No kind of buffer battery or double-layer capacitors may be used

If a receiver battery is used: The minimum weight is 5% of the total weight of model aircraft

Galvanic isolation between receiver and propulsion

Wings and stabilizer built in negative moulds may not be used

Model aircraft must be equipped by GPS logger and timer (IGC-format)

Every kind of telemetry is allowed.

5.5.7.2 Course Layout and Organisation

Every competitor gets his starting/landing spot

Minimum distance between starting/landing spots in one row: 10 m

Working time: 30 min

Start should be arranged in a minimum of groups with a maximum of competitors

5.5.7.3 Scoring

$$\frac{\text{competitor's own score of his flown distance multiplied by 1000}}{\text{longest distance of a competitor in this group}}$$

A penalty of 10% of the distance will be applied when the competitor starts before and lands after working time. Landing after 60 sec of the working time: The flight will be scored with 0.

A penalty of 5% of the distance will be applied if model aircraft lands more then 10 m outside of the starting/landing spot. Landing outside of this 10 m area the flight will be scored 0.

Reason: The solar flight rules – flying with "green energy" – must have a revival in FAI with modern electronic devices.

F5F – Electric 4 Cell Motor Gliders (Provisional)

r) F5F – Electric 4 Cell Motor Gliders (Provisional) The Netherlands

Amend title of class and amend 5.5.8.1 as follows:

5.5.8 F5F – ELECTRIC ~~4~~ 6 CELL MOTOR GLIDERS (PROVISIONAL)

Maximum number of only serial cells ~~4~~ **6**

Reason: The energy limit of 1300 W/min limits maximum power. 4 cells limit only makes high currents necessary. Higher cell counts should be allowed to lower currents to more sensible levels.

F5G – Electric Powered Big Glider

s) 5.5.9.3 Duration and Landing Task **F5 Subcommittee**

Amend the rules to change to the F5J concept, except for the landing:

5.5.9.3 Duration ~~and Landing Task~~

~~a) The duration task consists of 600 seconds gliding time and 30 seconds additional (free) motor run time.~~
~~b) The duration task starts from the moment the model aircraft is hand launched or started by a rubber catapult and ends with the first touch of the ground.~~
~~c) If more then 60 seconds of motor run time are used, one point will be deducted for each full second flown in excess of 600 seconds.~~
~~d) The competitor has to decide how much and how often he will switch on the motor.~~
~~e) Gliding time is cumulative and one point will be awarded for each full second the model aircraft is gliding.~~

Same rules as F5J

5.5.9.4 Landing

Additional points will be awarded for landing; when the model aircraft first touches the ground in one of the three concentric landing circles as follows:

30 m diameter circle - 10 points

20 m diameter circle – 20 points

10 m diameter circle – 30 points

No additional points will be awarded if the landing occurs more than 630 seconds after the beginning of this task.

Reason: The F5J concept is much better for big glider – except landing.

F5H – Electric Powered Open Motor Glider

t) ~~F5H Electric Powered Open Motor Glider~~ **F5 Subcommittee**

Delete the entire class F5H on page 32:

Reason: Not enough interest.

F5J – Thermal Duration Gliders with Electric Motor and AMRT

u) 5.5.11 Class F5J – Electric Thermal Duration Glider ~~(World Cup Event)~~ **F5 Subcommittee**

Delete the words ~~World Cup Event~~ with consequential changes to the contents page and other references to F5J as only a World Cup Event.

Change the status of F5J to an official one.

Reason: There is great demand for F5J Class.
In 2014 and 2015 several FAI World Cup events were held with a total of more than 400 competitors.
This complies with the conditions in Rule A.15.1

A.15. CHANGE FROM PROVISIONAL TO OFFICIAL RULES

A.15.1. Before being considered for adoption by the CIAM as official FAI rules, provisional rules must first have been used in each year of a two-year period up to the year of consideration. The rules must have been used in at least five international contests, or three World Cup contests. All the contests must be registered on the FAI Sporting Calendar and involve a total of at least five FAI member countries with at least two countries per contest and at least 50 competitors in total per year.

v) 5.5.11.13. Final Classification — Belgium

Insert new paragraph b) and renumber the next two paragraphs. Delete the former paragraph d):

a) If four (4) or fewer qualifying rounds are flown, the aggregate score achieved by the competitor, will be the sum of his scores for all rounds flown. If more than four (4) rounds are flown, then his lowest score will be discarded before determining his aggregate score.

b) The CD may elect to not have a fly-off providing this decision is announced before the start of the competition.

~~b~~) **c)** At the end of the qualifying rounds 30% (rounded down) of competitors with the highest aggregate scores will be placed together in a single Group comprising a minimum of six (6) and maximum of fourteen (14) for the fly-off rounds. For operational reasons the CD may set a lower maximum

~~c~~) **d)** A minimum of three (3) or maximum of four (4) fly-off rounds should be flown. Exceptionally the CD may reduce to two (2) in the case of bad weather or poor visibility

~~d) Where competitor numbers are under 20, the CD may elect to not have a fly-off providing this decision is announced before the start of the competition.~~

e) The Working Time for the fly-off rounds will be fifteen (15) minutes duration. An audible signal must be given at the start of the Group Working Time and at exactly thirteen (13) minutes and at exactly fifteen (15) minutes. Additionally, the final ten (10) seconds must be indicated audibly by a countdown. See 5.5.10.14.1. …

Reason: This will make the fly-off optional.
Promotes regularity of the pilot during the competition.
Allows for 2 or 3 more rounds with all pilots.

w) 5.5.11.13. Final Classification — The Netherlands

Amend paragraph a); remove paragraphs b) through to f); and introduce new paragraphs b) and c) as shown:

a) If four (4) or fewer ~~qualifying~~ rounds are flown, the aggregate score achieved by the competitor, will be the sum of his scores for all rounds flown. If more than four (4) rounds are flown, then his lowest score will be discarded before determining his final score.

~~b) At the end of the qualifying rounds 30% (rounded down) of competitors with the highest aggregate scores will be placed together in a single Group comprising a minimum of six (6) and maximum of fourteen (14) for the fly-off rounds. For operational reasons the CD may set a lower maximum~~

~~c) A minimum of three (3) or maximum of four (4) fly-off rounds should be flown.~~

~~Exceptionally the CD may reduce to two (2) in the case of bad weather or poor visibility.~~

~~d) Where competitor numbers are under 20, the CD may elect to not have a fly-off providing this decision is announced before the start of the competition.~~

~~e) The Working Time for the fly-off rounds will be fifteen (15) minutes duration. An audible signal must be given at the start of the Group Working Time and at exactly thirteen (13) minutes and at exactly fifteen (15) minutes. Additionally, the final ten (10) seconds must be indicated audibly by a countdown. See 5.5.10.14.1~~

~~f) The scoring of the fly-off rounds shall be as in section 5.5.11.12.~~

b) Final placing of the competitors shall be determined by their aggregate scores in the rounds.

c) In the event that two or more competitors have the same aggregate score, final positions of those competitors shall be determined by their discarded score.

Reason: The fly-off is a relic of F3J, where qualifying rounds are flown with ´teams´ (pilots from the same team do not compete against each other). Since teams are not allowed in F5J, there is no need for a fly-off.

By not having a fly-off more rounds can be flown by all pilots, making for a more exciting competition.

x) 5.5.11.13. Final Classification The Netherlands

Amend paragraph d) as follows:

d) Where competitor numbers are under ~~20~~ **40**, the CD may elect to not have a fly-off providing this decision is announced before the start of the competition.

Reason: The fly-off is a relic of F3J, where qualifying rounds are flown with ´teams´ (pilots from the same team do not compete against each other). Teams are not allowed in F5J. Even with 40 competitors a clear final result will be achieved without the fly-off.

Electing not to do the fly-off will make it easier to organise the national competitions (often 1-day), while still allowing for sufficient rounds to be flown.

F5K – Indoor Racing Model Aircraft (Provisional)

y) 5.5.12.2 Operation of the Race **F5 Subcommittee**

Replace point e) as shown below:

e) ~~Every cut will be penalized by one more lap.~~

e) One cut will be penalised by adding 10% of the flyer's time, two cuts by adding 200 points.

Reason: This system is better to organise.

Annex 5E – RULES FOR ELECTRIC FLIGHT (F5B, F5D, F5J) WORLD CUP EVENTS

z) 5E.3. Classification **F5 Subcommittee**

Add a new paragraph 5E.3.2 and shift the current 5E.3.2 and 5E.3.3 down:

5E.3.2 Only competitor's results from a minimum of two World Cup events per year can be counted for the FAI World Cup.

Reason: FAI World Cup ranking with only one result makes no sense.

Volume S Space Modelling begins overleaf

14.13 Section 4C Volume S – Space Modelling

PART ONE – GENERAL DEFINITIONS

a) 1.1 Space Model **Space Modelling Subcommittee**

Replace 1.1 with the new definition as shown below:

1.1 SPACE MODEL
~~"Space Model" means an aeromodel that ascends into the air without the use of aerodynamic lifting forces against gravity; that is propelled by means of a space model engine; that includes a device for returning it safely to the ground in a condition to fly again; and that is made of substantially nonmetallic parts.~~

1.1 SPACE MODEL

Model rocket or rocket glider - a model that rises into the air without the use of aerodynamic lift forces to overcome the gravitational forces set in motion by a rocket engine (s) using a vertical or near vertical free-ballistic flight by the force of the thrust rocket engine a cone with an angle of 60 °, oriented vertically on the launching device, comprising a device for safe return to the ground in a position that allows its reuse and constructed primarily of non-metallic materials.

Reason: This preamble gives an insight into the general requirements to any and all categories of space simulation and removes existing contradictions.

PART TWO – SPACE MODEL SPECIFICATIONS

b) 2.4.4 Minimum Dimensions **Space Modelling Subcommittee**

Delete S5 in the sentence as shown:

Minimum dimensions of subclasses of classes S1, S2, S3, ~~S5~~, S6, S9 and S10 must not be less than:

Reason: Correction. The S5 class has its own table of minimum dimensions in an extra table.

c) 2.4.4 Minimum Dimensions **Space Modelling Subcommittee**

After the first table in this paragraph, change the first sentence as follows:

In the case of Class S1 models, the smallest body diameter must be not less than ~~18~~ **25** mm for at least 75% of the overall length of each stage. An S1 sustainer stage may not have a boat tail.

Reason: In relation to class S1 it is necessary to have bigger models because of better visibility.

Technical Secretary's Note: The above proposal was also submitted by the USA. The USA added additional supporting data which has been reproduced below:

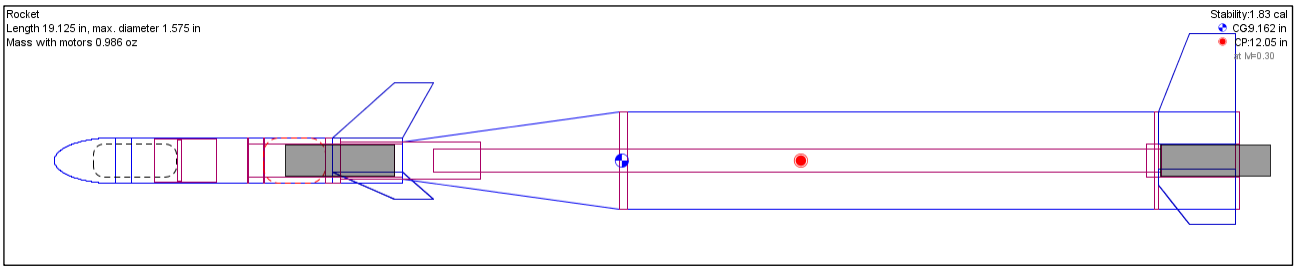
Using current model sizes, an 18mm diameter S1 sustainer stage flies to altitudes where the model is extremely difficult to see. This makes it very challenging for the Range Safety Officer (RSO) to assess if the recovery system of the model has deployed safely. The high altitude also makes it difficult for the competitor to see and successfully recover the model. Increasing the minimum required diameter of the sustainer stage will reduce the apogee height, thereby improving visibility for the RSO and the competitor.

As noted by Gerhard Wöbbeking[1], "such a pencil disappears in the sky up to total invisibility, even the ejected streamer remains invisible on descend in many cases." "Even worse, the invisibility of the second stage and the difficulty to retrieve the altimeter increasing with the height turns the sport upside down: The better the performance the more likely is no result. May the mediocre win!?"

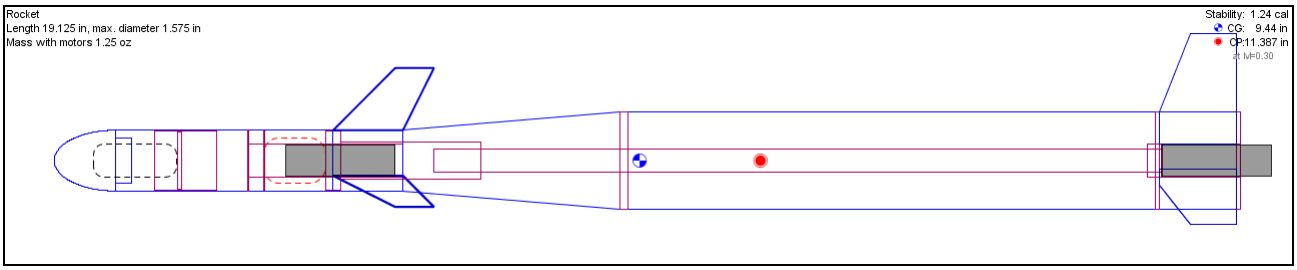
The first illustration below shows a typical S1B model that conforms to the dimensions specified in the SM Code, 2015 version. The winning flights at the 2012 and 2014 World Spacemodeling Championships were approximately 700 meters altitude or above. At these altitudes, the sustainer cannot be seen.

The second illustration shows an S1B model that has a 25 mm diameter sustainer. Altitude calculations predict that using a 25 mm sustainer will reduce the maximum altitude by ~20%. The sustainer is ~33% more visible. This will improve visibility for the contestant and the RSO, and will make it easier and more reliable to recover the model and its altimeter.

18mm diameter sustainer (2013 rules)



24mm diameter sustainer



[1]Wöbbeking, Gerhard, "Remarks on the EuCh for Space Models 2015", October, 2015.

d) 2.4 Construction Requirements **Space Modelling Subcommittee**

Add a new paragraph 2.4.8:

2.4.8 The upper stage in class S1 shall be prepared to carry a payload of 12 g, which partly or totally may be replaced by an electronic altimeter and/or a GPS tracker.

Reason: Because of the performances especially of the current S1- classes too often space models are lost in the sky and the best results with greatest heights (more than 400 or even 600 m) can't be verified. Thus the sport is turned upside down: The better the performance the more likely there is no result. A defined payload will:

a) reduce the performance in order to gain again a fair competition according to the tasks of our sport, and

b) offer volume to combine altimeter with GPS tracker.

An altimeter weighs about 1,2 g, the battery 1 - 2 g. Newly developed GPS transmitters weigh 4,7 g without battery; because of the higher current a battery of about 240 mAh capacity (5,5 g with wires) will feed both, altimeter and transmitter. A payload of 12 g will be suitable for the technology of today and can in future – step by step with further developments – be reduced to the absolute necessary.

PART FOUR – GENERAL RULES FOR INTERNATIONAL CONTESTS

e) 4.1 World Championship Events for Space Models USA

Revise 4.1 to allow a wider range of events and impulse classes at World Championships as shown below:

WORLD CHAMPIONSHIP EVENTS FOR SPACE MODELS

The following event **categories** are recognised ~~(2001)~~ as World Championships for Space Models:

~~i) W/CH for Senior classes:~~

a) altitude models – **S1**~~(delete B)~~ **, S2, or S2/P**
b) parachute duration models – **S3**~~(delete A)~~
c) boost glider duration models – **S4**~~(delete A)~~
d) scale altitude models – **S5**~~(delete C)~~
e) streamer duration models – **S6**~~(delete A)~~ **or S6/P**
f) scale – S7 **or S11**
g) rocket glider duration and precision landing models – **S8**~~(delete E/P)~~
h) gyrocopter duration models – **S9**~~(delete A)~~

The events and total impulse classes shall be selected by the contest organiser. One event is required for each category. Different events and total impulse classes may be selected for Senior and Junior classes.

~~ii) W/CH for Junior classes:~~

~~a) altitude models S1A~~
~~b) parachute duration models – S3A~~
~~c) boost glider duration models – S4A~~
~~d) scale altitude models – S5B~~
~~e) streamer duration models – S6A~~
~~f) scale – S7~~
~~g) rocket glider duration models – S8D~~
~~h) gyrocopter duration models – S9A~~

Reason: The FAI Space Modelling code includes a wide variety of events and total impulse categories. However, Rule 4.1 currently specifies eight specific event/impulse classes for World Championships. This causes a significant incentive for competitors to focus on only these eight classes and neglect all other events and impulse classes.

The proposed change to Rule 4.1 will provide greater flexibility to the World Championship organiser and provide greater incentive to the space modelling competition community to experience more events and impulse classes.

f) 4.4.3 Builder of the Model **Space Modelling Subcommittee**

Add a new sentence to the end of the paragraph as follows:

4.4.3 Builder of the Model

The judges shall make every reasonable effort to insure that each competitor has completely constructed the model entered in the competition with "construction" to be interpreted as the action required to complete a model starting with no more prefabrication than the amount used in the average kit. Models that are completely prefabricated or require only a few minutes of unskilled effort for their completion shall be excluded from competition. Materials and design may be obtained from any source, including kits. . The competitor must himself prepare his model for flight assisted by one helper, who must be a junior in junior classifications.**This paragraph does not apply to class S8.**

Reason: F3K model aircraft (hand launched gliders) equipped with an engine housing proved being the ultimate gliders as well for the S8 classes. Building these models demands skills and efforts beyond the ability of the most pilots. In order to avoid unfair conditions the B.o.M.-rule has to be skipped for S8.
All competitors qualified for the final of the FAI European Championships for Space Models 2015 class S8E/P used F3K models.

g) 4.9 Altitude Data **Space Modelling Subcommittee**

Move the paragraph 4.9.1.5 'Visibility of Models' (bold type) to the introductory paragraph 4.9. 'Altitude Data' as shown below. The numbers 4.9.1.5 will therefore be deleted

Add 'and competitors':

For measuring and calculating altitudes, the methods that may be used are based on the principles of triangulation, or electronic or radar tracking. **All models that are to be tracked for altitude shall disperse a coloured powder at ejection which will aid tracking. Theodolite operators and competitors may lose track of models which do not contain sufficient powder or contain powder which does not contrast well with the sky. The organiser will have tracking powder available for competitor's use.**

Reason: Because of the performances especially of the S1- and S5- classes too often space models are lost in the sky and the best results with greatest heights (more than 400 or even 600 m) can't be verified.

Of 79 flights in the class S1 (Juniors and Seniors) during the EUCh 2015 not less than 21 got no result. In most cases the competing team lost sight of the model during its climb and wasn't able to retrieve the second stage together with the altimeter.

h) 4.9.2.1 Electronic altitude measurements **Bureau**

Replace the entire section 4.9.2.1 with the paragraph below:

4.9.2.1 Electronic altitude measurements with an electronic altimeter shall use the new Sporting Code Volume EDIC – Electronic Devices in Competition – Section 2 - Technical Guidance Notes and Technical Specification for Altimeters Used in Space Modelling Competition V.1.0 for the documentation regarding specifications and guidance.

Reason: Electronic devices to be used in Space Models FAI international competitions must be treated in the same way as those used in other categories with detailed specifications, instructions for use and also for their technical testing to be put on the list of devices which satisfy all demands for each category. Therefore CIAM Bureau established a specialised EDIC WG to deal with technical aspects of electronic devices and all specifications and guidance on electronic devices shall be collected in a separate EDIC Volume of SC.

PART SIX – PAYLOAD COMPETITIONS (CLASSES S2 & S2/P)

i) 6.2.5 Scoring **USA**

Revise rule 6.2.5 to correct the scoring equation to agree with the text of the rule:

6.2.5. Scoring

The score for each flight shall be the absolute difference between the recorded altitude and 300 met**re**s (always a positive number) plus 3 times the absolute difference between the recorded duration and 60 seconds (always a positive number). Any flight which is disqualified for a reason other than a broken fragile payload, or which receives no altitude score, shall receive a score of 100 for that flight. The score for the event shall be the sum of the scores from each of the three flights. The lowest score is the winner. In the case of tie the best (the lowest score) in a round is decisive.

The following scoring formula shall be used for point allocation:

B = ~~INT~~ **ABS**(H-300) + 3 * ~~INT~~ **ABS**(T-60),

where B = points awarded to the competitor,
H = flight altitude of the model (met**re**s),
T = flight time of the model (seconds).

~~INT~~ **ABS** = ~~Integer~~ Absolute value function ~~in MS-Excel software~~

Reason: The text of Rule 6.2.5 specifies that the score of each flight shall be based

on the absolute values of the altitude difference and the duration difference. The proposed rule change makes the scoring formula consistent with the text of Rule 6.2.5.

PART EIGHT – BOOST/GLIDE DURATION COMPETITION (CLASS S4)

j) 8.1 Definition/Description — Space Modelling Subcommittee

8.2 Purpose of Competition

Amend the paragraphs as shown below:

8.1 Definition/Description
This competition comprises a series of events open to any free flight space model that ascends into the air without use of lifting surfaces which sustain the entry against gravity during that portion of flight when it is being subjected to or accelerated by thrust from its space model engine; and that returns ~~its~~ ~~glider portion~~ to the ground in stable gliding flight supported by aerodynamic lifting surfaces which sustain the ~~portion~~ **model** against gravity. …

8.2 Purpose of Competition
… Each model will be timed from the instant of first motion on the launcher until the instant the ~~gliding top portion~~ model touches the ground.

Reason: Correction. According to SC4 Volume SM par. 2.4.7., S4 models must fly and land without separation of any part in flight. The wording in 8.1 and 8.2 is in contradiction with that and it is necessary to harmonize the rules.

k) 8.1 Definition/Description — USA

Amend 8.1 as shown below (this is a similar proposal to Item i) above). Add a new paragraph at the end of that paragraph and delete the radio control rule:

This competition comprises a series of events open to any ~~free flight~~ space model that ascends into the air without use of lifting surfaces which sustain the entry against gravity during that portion of flight when it is being subjected to or accelerated by thrust from its space model engine; and that returns ~~its glider portion~~ to the ground in stable gliding flight supported by aerodynamic lifting surfaces which sustain the ~~portion~~ **model** against gravity. The intent of this competition is to provide a sporting competition for space models with gliding recovery. Space models that ascend into the air in a spiralling climb under rocket power in such a manner that they are supported during their rise by wings shall not be eligible for entry in this competition.

The model may use one channel of radio control to control a single function (rudder, elevator, flaps, dethermaliser, etc.). All models shall use spread spectrum 2.4 GHz radio systems to eliminate the need for transmitter impound.

Any model that qualifies as a flex-wing (Rogallo) rule 13.1.1 is not eligible for this event.

~~Any model that qualifies as a radio controlled model rule 11.5 is not eligible for this event.~~

Reason: Allowing one channel of radio control will increase the technical challenge of the event. It will also help recover models and minimise the loss of models.

PART NINE – SCALE COMPETITION (CLASS S7)

l) 9.9. Maximum Weight and Impulse **Space Modelling Subcommittee**

Delete the existing three sentences and insert replacement sentences as follows:

~~Maximum allowable gross launching weight is limited to 1500 grams.~~
~~Maximum allowable total impulse is 160,00 Newton-seconds.~~
~~Maximum engine size allowed is 80Newton-seconds.~~

Maximum allowable gross launching weight is limited to 2000 grams.
Maximum allowable total impulse is 240,00 Newton seconds.
Maximum engine size allowed is 100 newton seconds.

Reason: It will be possible to manufacture more copies of the spectacular model that attracts a large number of space modelers. Space Modelling will become more attractive and understandable to the spectators and sponsors.

m) 9.11.1 Scale Judging **USA**

Annex 1 Scale Judging – Prototype Drawings

Remove the requirement that the workshop drawing be 1:1 to the scale model:

9.11.1. A competitor who presents the following proper technical data may be awarded with points defined in the paragraphs below only for items documented in these technical data:
- authentic, authorised drawing(s) of the prototype with at least ten dimensions and three cross sections, i.e. data which define colour of cross sections and markings on it
- workshop drawing of scale model ~~- scale 1:1~~ **that shows prototype and model dimensions**
- at least one colour photograph of the whole prototype with clearly visible details of colour and markings
- at least three photographs of details and assemblies
- file containing all necessary technical data including data regarding the locations of the centre of gravity, centre of pressure, gross weight, burnout weight and/or calculated or measures flight performance of the model necessary for safety reasons.

Annex 1 (page 52)

- workshop drawing of scale model ~~- scale 1:1~~ **that shows prototype and model dimensions**

Reason: Very large models (up to two metres in height) are becoming popular in S7. For very large scale models, a 1:1 workshop drawing is too large for practical use during static judging. In addition, these large drawings are difficult and expensive to print. A smaller workshop drawing is more practical to use during judging.

n) 9.11.4. Degree of difficulty **Space Modelling Subcommittee**

Amend the paragraph as shown below:

9.11.4. Degree of difficulty**:** 150 points maximum. To be judged on the degree of difficulty involved in constructing the model up to 110 points. Factors to be considered include symmetry of model; number of external components; intricacy of paint pattern; **and** degree of detailing. ~~and degree of difficulty in adapting the model for flight conditions~~. A bonus of 40 points for "originality" shall be awarded to a prototype that is the only one in the competition and a bonus of 20 points shall be awarded if two prototypes of the same kind enter the competition. No bonus points shall be awarded if there are three or more models of the same kind.

Reason: In the last years too many flights at World and European Championships ended by DQ, only because the scale model was not stable enough. The main reason is to achieve points for flyability. By deleting this term, modellers will be encouraged to build their models more stable, and will improve the attractiveness of this event.

o) 9.11.4. Degree of difficulty **USA**

Include the addition as shown at the end of the paragraph:

9.11.4. Degree of difficulty: 150 points maximum. To be judged on the degree of difficulty involved in constructing the model up to 110 points. Factors to be considered include symmetry of model; number of external components; intricacy of paint pattern; degree of detailing; and degree of difficulty in adapting the model for flight conditions. A bonus of 40 points for "originality" shall be awarded to a prototype that is the only one in the competition and a bonus of 20 points shall be awarded if two prototypes of the same kind enter the competition. No bonus points shall be awarded if there are three or more models of the same kind. **For originality points, prototypes with the same external appearance except for flight serial number/markings and colours/paint pattern shall not be considered unique vehicles (e.g., Saturn IB/Skylab flights, Soyuz-FG/TMA flights, etc.).**

Reason: Clarify the definition of 'originality'. The purpose of the originality bonus points is to encourage more diversity in the S7 prototypes entered. However, the current definition of unique prototype is not well defined. The purpose of the rule change is to clarify that having two or more prototypes that are identical except for serial number (and related markings and paint pattern) do not qualify as unique prototypes.

p) 9.11.7 (new) **USA**

Add a new rule 9.11.7 regarding the publication of results as follows:

9.11.7. Results for static points and flight characteristics shall be published for the categories defined in Rules 9.11.2 through 9.11.4:

- **Adherence to Scale**
- **Workmanship**
- **Degree of Difficulty**

- **Flight Characteristics**

For World and Continental Space Modelling Championships, the judging scores from each judge shall be anonymously published.

Reason: In order for scale modellers to improve their models, it is important to get information and feedback from the judging process. Publishing a breakdown of the static and flight judging categories will provide helpful information.

q) 9.12 USA

Amend paragraph 9.12 as shown below:

Should the model experience a catastrophic failure, be incapable of additional flights (4.6.3.) and have scored no Flight Characteristic points, the competitor's ~~static scale points will be taken to decide final classification~~ **score shall be zero**.

Reason: Currently, rule 9.12 permits a scenario where a model can receive a score (equal to its static scale points) even though the model has not demonstrated that it can make a stable, qualified flight. This could affect event results for individuals and teams. For safety, a model should be required to make a qualified flight.

PART ELEVEN – ROCKET GLIDER DURATION COMPETITION (CLASS S8)

r) 11.1. General Switzerland

Add a new paragraph 11.1.3 with text as follows:

11.1.3 Radius of the nose must be a minimum of 5 mm in all orientations for S8D, S8E, S8E/P, S8F

Reason: Safety.

s(i)) 11.6. Sub-Classes Space Modelling Subcommittee

Change wing span, weight and total impulse of the engine as shown in the tables below:

11.6. SUB-CLASSES

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MINIMUM WING SPAN (mm)	MAXIMUM FLIGHT TIME (sec)
S8A	0,00 -2,50	60	500	180
S8B	2,51- 5,00	90	650	240
S8C	5,01- 10,00	120	800	300
~~S8D~~	~~10,01- 20,00~~	~~300~~	~~950~~	~~360~~
~~S8E & S8E/P~~	~~20,01 -40,00~~	~~300~~	~~1100~~	~~360~~
~~S8F~~	~~40,01 80,00~~	~~500~~	~~1250~~	~~360~~

11.6. SUB-CLASSES

CLASS	**TOTAL IMPULSE (Newton-seconds)**	**MAXIMUM WEIGHT**	**MINIMUM WING SPAN**	**MAXIMUM FLIGHT TIME**

		g)	(mm)	(sec)
S8A	**0,00 -2,50**	**60**	**500**	**180**
S8B	**2,51- 5,00**	**90**	**650**	**240**
S8C	**5,01- 10,00**	**120**	**800**	**300**
S8D & S8E/P	**10,01- 20,00**	**300**	**1200**	**360**
S8E	**20,01- 40,00**	**400**	**1500**	**480**
S8F	**40,01 80,00**	**500**	**1500**	**480**

Reason: Reduction of total impulse of the engine (s) and the increase in wing span and improve the observability of the glider will make the class attractive for spectators and sponsors.

Technical Secretary's Note: See also the next item s(ii)) regarding the same paragraph.

s(ii)) 11.6. Sub-Classes **Switzerland**

*Change the dimensions***:**

CLASS	TOTAL IMPULSE (Newton-seconds)	MAXIMUM WEIGHT (g)	MINIMUM WING SPAN (mm)	MAXIMUM FLIGHT TIME (sec)
S8A	0,00 - 2,50	60	500	180
S8B	2,51 - 5,00	90	650	240
S8C	5,01 - 10,00	120	800	300
~~S8D~~	~~10,01 - 20,00~~	~~300~~	~~950~~	~~360~~
~~S8E & S8E/P~~	~~20,01 - 40,00~~	~~300~~	~~1100~~	~~360~~
~~S8F~~	~~40,01 - 80,00~~	~~500~~	~~1250~~	~~360~~
S8D	**10,01 - 20,00**	**300**	**1100**	**360**
S8E & S8E/P	**20,01 - 40,00**	**400**	**1300**	**360**
S8F	**40,01 - 80,00**	**500**	**1480**	**360**

Reason: Safety. New models modified from DLG Gliders goes very high up, bigger span reduce this. The new weight for S8E & S8E/P allows to fly any DLG Glider.

t) 11.7.2. Specifications **Space Modelling Subcommittee**

Replace the first sentence to change the total impulse to agree with the table of sub-classes above:

11.7.2. SPECIFICATIONS

~~The competition has only one subclass determined for models which comply with subclass S8E. Total impulse of engine(s) 20,01 to 40,00 is allowed.~~

The competition has only one subclass determined for models which comply with subclass S8D. Total impulse of engine(s) 10,01 to 20,00 is allowed.

The radio shall be able to operate simultaneously with other equipment at 20 kHz spacing. Where the radio does not meet this requirement, the working bandwidth (Maximum 50 kHz) shall be specified by the competitor.

Reason: Reducing the total impulse the motor(s) observability gliders for judges and will return "sportiness" in this class of models. Since this is an existing total impulse H c 40 show results in 360 seconds does not seem a daunting task.

u) 11.7.2. Specifications **Switzerland**

Amend the second paragraph as shown below:

The radio shall be able to operate at **2.4 GHz** ~~simultaneously with other equipment at 20 kHz spacing~~. Where the radio does not meet this requirement, shall be specified by the competitor.

Reason: Now the 2.4 GHz radios are state of art, this make the competition more easy.

v) 11.7.4.6. Timing and Classification Space Modelling Subcommittee

Delete the first paragraph in 11.7.4.6., replacing it with the new text as shown below:

11.7.4.6. Additional points will be awarded for landing:

~~When the nose of the model comes to rest within one metre of the centre of the designated landing circle, 100 points will be given. 10 points are deducted from the maximum of 100 points for every further metre from the centre. If the nose of the model lands between marks it is the lower of the marks that counts.~~

When the nose of the rocket-glider comes to rest, the distance from the nose to the centre of the circle is measured. One (1) point is deducted from a maximum of 100 points for every 10 centimetres from the centre.

Reason: This scoring system differentiates the skill of the pilot, and does not allow the athletes in one group receiving 1000 points.

w) 11.7.4.8. Timing and Classification Space Modelling Subcommittee

Add the text to the second sentence as follows:

11.7.4.8. The winner of a particular flight in the relating group receives a score of 1000 points. Other competitors receive points as follows **(fractions to be rounded to 1/100)**:

Reason: Fractions of points are needed in order to avoid ties or even a wrong classification.

Technical Secretary's Note: See also the next item x) regarding the same paragraph.

x) 11.7.4.8. Timing and Classification Switzerland

Add new text to the second sentence as follows:

The corrected score shall be recorded (rounded) to one place after the decimal point.

Reason: Clarification.

y) 11.7.4.9. Timing and Classification Switzerland

Amend text in the first sentence as follows:

The five competitors with the highest scores after ~~three~~ **four** starts qualify for the final round.

Reason: The competitors want to fly more.

z) 11.7.4.11. (new) USA

Add new rule 11.7.4.11. to increase the number of rounds for World and Continental Championships:

11.7.4.11. For Continental and World Championships, the number of initial rounds may be increased from three to five. The number of final rounds may be increased from one to two. The number of rounds shall be declared in the pre-contest bulletins.

Reason: As noted by Gerhard Wöbbeking[1], S8 classes "are very nice to watch and their launches are spectacular, not at least because of the comparable high engine power." Mr. Wöbbeking recommended increasing the number of initial rounds from three to five. This increase, along with increasing the number of final rounds, will reward contestants that have excellent and consistent skills.

[1] Wöbbeking, Gerhard, "Remarks on the EuCh for Space Models 2015", October, 2015.

aa) 11.7.5.3 Organisation of Starts Switzerland

Amend the first sentence as shown below:

Each group of competitors has ~~14~~ **12** minutes of working time to ~~collect transmitters from the official,~~ perform an official flight ~~and return the transmitters to the official~~. In the case of the working time being exceeded (a delay in ~~returning the transmitter to the official~~ **landing**), the competitor will be disqualified for the round.

Reason: With 2.4 GHz radios we need not return the transmitter, so we can reduce the working time.

Technical Secretary's Note: See also the next item ab) regarding the same paragraph.

ab) 11.7.5.3 Organisation of Starts Space Modelling Subcommittee

Amend the first sentence as shown below:

Each group of competitors has ~~14~~ **10** minutes of working time to ~~collect transmitters from the official,~~ perform an official **flight** ~~and return the transmitters to the official~~. In the case of the working time being exceeded (~~a delay in returning the transmitter to the official~~ **i.e. if the model lands after expiry of working time**), the competitor will be disqualified for the round.

Reason: Now almost all pilots use spread spectrum 2.4 GHz RC radio devices. See SC4 Vol SM 4.7.5: "When all the RC radio devices are spread spectrum 2.4 GHz, they must not be impounded." If anyone will use other devices, will be receiving the transmitters during the preparing time and to take off after the end of working time.

Reducing working time to 10 minutes, because they do not need to take on and off

the transmitters in during working time, as well as enhanced competition and reducing the time of the competition.

ac) 11.7.5.4 Organisation of Starts **Switzerland**

Delete the text as shown below:

In normal situations the circles will overlap each other but the centres should never be closer than ~~5 metres apart. In normal practice, the circle centres should be~~ 10 metres apart as in the diagram above. A competitor (pilot) and one helper may stay at the landing area either inside or outside the landing circles.

Reason: Safety.

Annexes

ad) Annex 1 – Scale Space Models Judge's Guide Space Modelling Subcommittee

In the Table of Judging Considerations, delete the term 'Staging' and add the term 'Powered Separation' as shown below:

Flight Characteristics	Special Effects	Did the model exhibit any special effects such as Launching a space probe, separating boosters, radio control devices, ejecting satellites, deploying shield, scale launcher, gliding recovery etc. Special effects can only emulate the actions of the prototype. Maximum of 15 points for each effect.	(0-60)____
	~~Staging~~	~~Add 30 points for each successful stage separation. No points for a single stage model.~~	~~(0-60)____~~
	Clusters	Add 5 points for each engine that ignites up to a maximum. No points for single engine models.	(0-30)____
	~~Staging and~~ Cluster Misfires	Subtract 15 points for each engine that fails to ignite.	(0-minus)____
	Powered separation	**Up to 30 points for realistic powered separation of a powered portion of a model (capsule, stage, powered spacecraft, etc.) in accordance with paragraphs 2.3.1., 2.3.2. and Annex 2- 4.d.2.**	**(0-60)____**

Reason: Models like little Joe 1 are 'penalised' in flight points, because they do not have a second and/or third stage, although they do have a powered part (in this case the capsule). By launching the capsule as an effect, the competitor loses automatically a minimum of 15 points by performing the same as (for example) someone who launches a Nike-Tomahawk and receives 30 points whether the flight was stable or not. Also this rule change will not only make more prototypes competitive, but it will stop the discussions about whether a powered rocket part is or isn't a second or third stage.

ae) Annex 1 – Scale Space Models Judge's Guide Space Modelling Subcommittee

In the Table of Judging Considerations, change the range of points in the sub-categories 'External Components' and 'Detailing'. Delete the sub-category 'Flyability.

Degree of Difficulty	External Components	Consider the number and complexity of the entry's external components including fins, transitions, interstage adapters, shrouds, strapon booster, launch lugs, antennae, etc. Also consider to what extent the aforementioned components were prefabricated by none other than the entrant.	**(0-30)** ~~(0-20)~~
	Detailing	Consider the number of separate details including nuts, bolts, screws, rivets, fasteners, welds, hatches, panels, corrugations, etc. Also consider to what extent the aforementioned details were prefabricated by anyone other than the entrant.	**(0-30)** ~~(0-20)~~
	Paint Pattern	Consider the number of colours and complexity of the entry paint pattern. Also consider the number and complexity of the entry's markings and to what extent these markings were prefabricated by anyone other than the entrant.	(0-20)
	~~"Flyability"~~	~~Consider the difficulty in adapting the entry to make a qualified flight including absence of fins, small fin area, extremes of CP and/or CG, etc.~~	~~(0-30)~~

Reason: In the last years too many flights at World and European Championships ended by DQ, only because the scale model was not stable enough. The main reason is to achieve points for flyability. By deleting this term modelers will be encouraged to build their models more stable, and will improve the attractiveness of this event. By adding more points to the subclasses "External Components" and "Detailing", the competitors have the motivation to build more accurate scale models.

af) Annex 1 – Scale Space Models Judge's Guide Space Modelling Subcommittee

In the Table of Judging Considerations, change the range of points in the sub-category 'Configuration'.

FAI CATEGORY	SUB-CATEG.	JUDGING CONSIDERATIONS	POINTS
Degree of difficulty	Configurarion	To what degree does the entry depart from the configuration of a "finned cone-topped cylinder.	(0-~~30~~ **20**)

Reason: The Total of the Category is 150 points and not 160, so one Sub-Category needs to be reduced by 10.

ag) Annex 2 – Space Modelling Judge's and Organisers Guide Space Modelling Subcommittee

In Paragraph 4. Specific Effects, change sub-paragraph d.2 as shown below:

Flight Characteristics - Special Effects **and Powered Separation**: As Special Effects (according to the judging rules) may only emulate the action of the prototype, three staged rockets, like Ariane, shall not deploy nose cone cover shield and jettison a satellite during operation of the 1st or 2nd stage. On the contrary, with Saturn or Soyuz, function of rescue system during the 1st stage operation is planned and possible. In case of doubt, competitor is obliged to prove reality of declared special **effect and/or powered separation** by relevant technical data. How many points to award for several special effects? Compare the degree of difficulty of four booster separation to smoke before lift off!

Reason: Clarification to the proposition of adding the term “powered separation” by deleting “staging”.

ah) Annex 2 – Space Modelling Judge’s and Organisers Guide **Space Modelling Subcommittee**

In Paragraph 4. Specific Effects, add sub-paragraph d.5 as shown below:

d.5. Definition of a scale model prototype: A scale model prototype is defined as the first sub-class of a rocket family (according to NASA and Wikipedia this is defined as version). For example : Ariane is the name of a rocket family, which has flown five variants up to date, thus: Ariane 1, 2, 3, 4 and 5. These five variants are defined as scale model rocket prototypes.

Reason: The rules are missing a direct definition what is a prototype. This add will clarify also the discussions regarding points for “Originality”.

ai) Annex 2 – Space Modelling Judge’s and Organisers Guide **Bureau**

In Paragraph 5. Organisers’ Tasks, replace sub-paragraph b.2 with the paragraph as follows:

b.2. Electronic altitude measurements with an electronic altimeter shall use the new Sporting Code Volume EDIC – Electronic Devices in Competition – Section 2 - Technical Guidance Notes and Technical Specification for Altimeters Used in Space Modelling Competition V.1.0 for the documentation regarding specifications and guidance.

Reason: Electronic devices to be used in Space Models FAI international competitions must be treated in the same way as those used in other categories with detailed specifications, instructions for use and also for their technical testing to be put on the list of devices, which satisfy all demands for each category. Therefore CIAM Bureau established a specialized EDIC WG to deal with technical aspects of electronic devices and all on electronic devices shall be collected in a separate EDIC Volume of the FAI Sporting Code Section 4.

aj) Annex 3 – Space Models World Cup **Switzerland**

In Paragraph 4. Points Allocation, amend the final sentence and add the new text as follows:
In the event of a tie for any placing, all competitors with that placing receive the number of points appropriate to that placing, ~~rounding up the score to the nearest whole number of points.~~ **The corrected score shall be recorded (rounded) to one place after the decimal point.**

Reason: Clarification.

End of Agenda Item 14

15. ELECTION OF BUREAU OFFICERS AND SUBCOMMITTEE CHAIRMEN

15.1. CIAM Officers

President
1st Vice President
2nd Vice President
3rd Vice President
Secretary
Technical Secretary

15.2. Subcommittee Chairmen

F2 Control Line
F4 RC Scale
F5 RC Electric
F7 RC Aerostats
S Space Models
Education

16. FAI WORLD AND CONTINENTAL CHAMPIONSHIPS 2016 – 2019

VERY IMPORTANT: Each NAC/country/Delegate presenting a bid prior to voting for the award of the Championships may make a presentation of the championship organisation, lasting a MAXIMUM of 2 minutes only. Presentations for bids with only one candidate will be performed only if any of the Delegates requests so. Bidders are requested to distribute important information prior to the meeting, to each of the NACs/delegates by electronic means. This is to enable Delegates to study the contents of the bid, so that they may make informed decisions at the meeting.

FAI WORLD CHAMPIONSHIPS

2016 FAI World Championships for…	Awarded to	Location and Actual Dates
F1A, F1B, F1P Juniors	**FYR OF MACEDONIA**	Prilep, 1– 7 August
F1D (Seniors and/or Juniors)	**ROMANIA**	Slanic Prahova, 11-16 April
F2A, F2B, F2C, F2D (Seniors and Juniors)	**AUSTRALIA**	Perth, 7-13 May
F3F (Seniors and Juniors)	**DENMARK**	Hanstholm, 2-9 October
F3J (Seniors and/or Juniors)	**SLOVENIA**	Vipava 30 July – 7 August
F4CH (Seniors and Juniors)	**ROMANIA**	Ploiesti, 20 – 28 August
F5B, F5D (Seniors and Juniors)	**ITALY**	Lugo di Romagna (RA) 13 – 20 August
SPACE MODELS (Seniors and Juniors)	**UKRAINE**	Lviv 22 – 30 August

2017 FAI World Championships for…	Bids From	To be Awarded in 2016
F1A, F1B, F1C Seniors	awarded in 2015 **HUNGARY**	----------
F1E (Seniors and/or Juniors)	awarded in 2015 **ROMANIA**	----------
F3A (Seniors and Juniors)	Offers invited	
F3B (Seniors and Juniors)	Offers invited	
F3CN (Seniors and Juniors)	awarded in 2015 **POLAND**	----------
F3M (Seniors and Juniors)	Offers invited	
F3D (Seniors and Juniors)	United Kingdom (firm) Sweden (firm)	
F3K (Seniors and/or Juniors)	Ukraine (firm)	
F3P (Seniors and Juniors)	awarded in 2014 **FRANCE**	----------

2018 FAI World Championships for…	Bids From	To be Awarded in 2016
F1A, F1B, F1P Juniors	Offers invited	
F1D (Seniors and/or Juniors)	USA (firm)	
F2A, F2B, F2C, F2D (Seniors and Juniors)	Poland (firm) France (firm)	
F3F (Seniors and Juniors)	United Kingdom (firm)	
F3J (Seniors and/or Juniors)	Poland (firm)	
F4CH (Seniors and Juniors)	Canada (tentative) Switzerland (firm)	
F5B, F5D (Seniors and Juniors)	Offers invited	
SPACE MODELS (Seniors and Juniors)	Poland (firm)	

2019 FAI World Championships for…	Bids From	To be Awarded in 2017
F1A, F1B, F1C Seniors	Offers invited	
F1E (Seniors and/or Juniors)	Offers invited	
F3A (Seniors and Juniors)	Offers invited	
F3B (Seniors and Juniors)	Offers invited	
F3CN (Seniors and Juniors)	Offers invited	
F3M (Seniors and Juniors)	Offers invited	
F3D (Seniors and Juniors)	Australia (tentative)	
F3K (Seniors and/or Juniors)	Offers invited	
F3P (Seniors and Juniors)	Offers invited	

FAI CONTINENTAL CHAMPIONSHIPS

2016 FAI Continental Championships for…	Awarded to	Location and Actual Dates
F1A, F1B, F1C Seniors	**SERBIA**	Zrenjanin, 13 - 20 August
F1E (Seniors and/or Juniors)	**ROMANIA**	Turda Rupea, 20 – 24 July
F3A (Seniors and Juniors)	**GERMANY**	Untermünkheim, 29 July – 6 August
F3A Asian-Oceanic (Seniors and Juniors)	**CHINESE TAIPEI**	Tung-shi, 1- 8 October
F3CN (Seniors and Juniors)	**POLAND**	Wloclawek 22 - 31 July

2017 FAI Continental Championships for…	Bids from	To be Awarded in 2016
F1A, F1B, F1P Juniors	awarded in 2015 **FYR OF MACEDONIA**	----------
F1D (Seniors and/or Juniors)	awarded in 2015 **ROMANIA**	----------
F2A, F2B, F2C, F2D (Seniors and Juniors)	awarded in 2015 **HUNGARY**	----------
F3F (Seniors and/or Juniors)	Offers invited	
F3J (Seniors and/or Juniors)	Slovakia (firm)	
SPACE MODELS (Seniors and Juniors)	awarded in 2015 **POLAND**	----------

2018 FAI Continental Championships for…	Bids from	To be Awarded in 2016
F1A, F1B, F1C Seniors	Offers invited	
F1E (Seniors and/or Juniors)	Offers invited	
F3A (Seniors and Juniors)	Offers invited	
F3A Asian – Oceanic (Seniors and Juniors)	Offers invited	
F3B (Seniors and Juniors)	Offers invited	
F3CN (Seniors and Juniors)	Offers invited	
F3CN Asian – Oceanic (Seniors and Juniors)	Offers invited	
F3M (Seniors and Juniors)	Offers invited	
F3K (Seniors and/or Juniors)	Offers invited	
F3P (Seniors and Juniors)	Offers invited	

2019 FAI Continental Championships for…	Bids from	To be Awarded in 2017
F1A, F1B, F1P Juniors	Offers invited	
F1D (Seniors and/or Juniors)	Czech Republic (firm)	
F2A, F2B, F2C, F2D (Seniors and Juniors)	Offers invited	
F3F (Seniors and/or Juniors)	Offers invited	
F3J (Seniors and/or Juniors)	Offers invited	
SPACE MODELS (Seniors and Juniors)	Offers invited	

17. ANY OTHER BUSINESS

18. NEXT CIAM MEETINGS

The table of Agenda Annexes appears overleaf.

ANNEXES TO THE AGENDA OF THE 2016 CIAM PLENARY MEETING

ANNEX FILE NAME	ANNEX CONTENT
ANNEX 1 (a-b)	FAI Code of Ethics, Nomination Form for Office Holders
ANNEX 2 (a-m)	2015 FAI Championship Reports
ANNEX 3 (a-q)	2015 Subcommittee Chairmen Reports, Technical Secretary, Treasurer Reports, CIAM Flyer, EDIC WG, CIAM Drones, Scholarship
ANNEX 4 (a-i)	2015 World Cup Reports
ANNEX 5 (a-d)	2015 Trophy Reports
ANNEX 6 (a-e)	FAI-CIAM Awards: Nominee Forms
ANNEX 7a	F1 Annex 2 – A Guide for the Organisers of FAI Contests in the Outdoor Free Flight Classes
ANNEX 7b	F2 Section 4.3 – Class F2C Team Racing Model Aircraft
ANNEX 7c	Changes and clarifications to i) Class F2C Team Racing Rules and ii) Annex 4C – Judges Guide
ANNEX 7d	F2 Annex 4C – Class F2C Team Race Panel of Judges Guide
ANNEX 7e	About F5B Scoring
ANNEX 7f	Volume – CIAM General Rules Draft 2017 (includes the list of Amendments to Volume ABR 2016)
ANNEX 7g	Volume ABR Revision – PowerPoint Presentation
ANNEX 7h	Parts Volume ABR not included in General Rules
ANNEX 7i	CIAM Forms and Documents List
ANNEX 7j	SC4_Vol_F3_FPVRacing_16
ANNEX 8 (a-d)	Scholarship Candidates

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