

**BRITISH MODEL FLYING ASSOCIATION**  
**CONTEST RULES**  
**SECTION 3**  
**FREE FLIGHT**  
**INDOOR AND OUTDOOR**

To be read in conjunction with the General Rules, Sections 1 and 2, which are available free of charge from the BMFA

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# SECTION 3

## FREE FLIGHT AND INDOOR RULES - 2009

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### NOTES

#### New Rules

For ease of reference, new rules and rule changes are denoted by a side bar, thus.

There are clarifications on R/C D/Ts.

The Plugge Cup has some new rules and the P 30 class now has a minimum model weight.

## **Gender**

Throughout this rule book the pronoun 'he' is used for conciseness. 'She' should be substituted when appropriate.

## **Wind**

The FAI rule concerning the wind speed at which a contest may be interrupted is FAI Sporting Code, Section 4, rule 2.11.1.(a) which states:

A contest may be interrupted if 'the wind is continuously stronger than 12 m/sec (9 m/sec for free flight and scale), measured at 2 metres above the ground at the starting line for at least one minute (20 seconds for free flight), unless specified otherwise in the category rules'.

## **Surface Area**

The following is the definitive FAI method of measuring surface area and is taken from the FAI Sporting Code.

The surface area includes the total surface of the wings and that of the horizontal or oblique stabilising surface or surfaces. The surfaces taken for calculation are the orthogonal projection on to a horizontal plane of the surfaces in question with each surface at zero incidence (i.e. place the wing on a flat surface with the tips propped up at the correct dihedral angle and then project its outline vertically downwards on to the flat surface - Ed).

When wings or stabilising surfaces are built into the body of the aeroplane the surface taken into account shall include that area contained within the normal contours of the flight surfaces extended so as to meet at the plane of symmetry of the model.

## **FAI Outdoor Free Flight Rules**

Classes 3.25 to 3.32 inclusive plus 3.50 and 3.51 set out all the FAI Free Flight rules taken direct from the FAI Sporting Code and Provisional Rules.

Note that domestic BMFA events are NOT run to full FAI rules and that the full FAI rules are included in this rule book for information only, giving BMFA Free Flight competitors as much information as possible within this BMFA contest rule book.

The numbering system of these classes (plus several Indoor classes) gives the BMFA class number first followed by individual rule numbers taken direct from the FAI Sporting Code.

Thus rule 3.25.3.1.5 in this book refers to part of BMFA class 3.25 (F1A Gliders, FAI Rules) and rule number 3.1.5 is that same rule in the FAI Sporting Code, Section 4.

## 3.1 FREE FLIGHT GENERAL RULES

These rules apply to all Free Flight classes except where varied by special regulations.

### 3.1.1 Definitions

#### (a) Free Flight

- (i) A flight where there is no physical or any other connection that may carry data between the competitor and the model after the flight has commenced. This prohibits the use of transmissions of any type to the model in flight for the purposes of controlling any of its functions, except as noted below.

For FAI class F1A, F1B, F1C, F1E and F1Q models, when flown in contests only for these classes, the use of transmissions to the model is permitted but restricted to the DT and motor stop functions as defined in the FAI rules (See rules 3.25.3.1.2 - 3.26.3.2.2 - 3.27.3.3.2 - 3.28.3.5.2 and 3.51.3.Q.1 in this rule book). The use of the 35MHz and 27MHz transmission bands is specifically prohibited. The FFTC recommends the use of the 2.4 GHz band.

Note that transmissions are not permitted when such models are flown in BMFA class or Combined Class contests.

- (ii) Outdoor contest flights must take place outdoors.

#### (b) Builder of the Model

- (i) Outdoor Free Flight

This rule no longer applies to any event featured in the Official BMFA Free Flight Calendar unless required by the individual class rules e.g. Bowden Class.

Joining of materials used in the construction of the model, together with unsupported covering, finishing and painting must be solely the work of the contestant.

The following items may be of any origin:-

Engines, motors and their accessories, wheels, timers, tow-hook assemblies, electronics and batteries of any sort, propellers, propeller assemblies with or without blades, wing and tail mounts, fuselage tubes and booms, trim adjustment assemblies and spars and any other items made of metal or in one piece of plastic (plastic to include fibre/resin mixtures and foam).

In the event of a protest, or, in the Contest Directors opinion, there is the suspicion of any infringement, the contestant in question may be required to describe to the CD's satisfaction how a component or components were made by him.

Although this request may be made at anytime, it must not be allowed to delay, interrupt or upset flying, and answers can wait until after the end of the contest. The penalty for transgression of this rule will be disqualification from the contest.

The CD is at liberty to delegate his responsibility in this matter to a jury of three other contestants selected at random. At all times the contestant under scrutiny retains his right to appeal to the BMFA Council.

- (ii) Indoor Free Flight

The entrant must be the constructor of the model. The constructor may employ generally available building aids or small components in the production of their model but the airframe must be the competitor's own work.

### **(c) Ownership of Models**

The entrant must be the owner of the model before the start of the contest. Ownership of the model shall require that the owner's BMFA number, and/or FAI Licence number, shall be permanently displayed on the model in accordance with General rule 2.3.12. If the model has been previously owned then any numbers arising from this previous ownership shall have been permanently removed.

## **3.1.2 Number of Models**

- (a) Competitors may use 2 models for 3 flight events, 3 models for 5 flight events, and 4 models for more than 5 flight events. Competitors in F1E may use five models in any event. Additional models shall not be allowed in fly-offs.

Free Flight Technical Committee clarification - Flyers should be aware that they may utilise any combination of models that they wish within the numbers allowed. For instance, in a three flight event, they may make their three qualifying flights with one model, reserving their second model solely for a fly-off if needed.

- (b) Various parts of models may be interchanged providing the resulting complete model conforms to the rules of the contest. The competitor may use spare propellers, rubber motors, piston engines, electric motors or batteries. No individual engine or electric motor may be used by more than one competitor in a particular contest.
- (c) Repairs are permitted provided they do not in any way alter the specification of the model as defined in the rules.
- (d) In the event of a model being eligible for two or more contests held on the same day, separate flights must be made for each contest. Before making a flight or an attempt at a flight, competitors must declare for which contest the flight or attempt is to count.

## **3.1.3 Number of Flights**

Each competitor is entitled to make three official flights (except where the rules state otherwise). If required a further flight or flights may be made to determine final placing in the contest (see 3.1.4.3).

## **3.1.4 Scoring**

### **3.1.4.1 Maximums**

- (a) The duration of flights will be used for scoring purposes with a maximum of three minutes being recorded for all but fly-off flights (unless specified otherwise in the special rules governing the contest). For Area centralised contests the maximum shall be two and a half minutes unless a lower maximum is already specified in the special regulations governing the class. Before the start of a centralised contest the Contest Director (CD) may vary the maximum to suit conditions. The maximum for FAI contests may be varied to suit the conditions before the start of any round.
- (b) In F1E contests the maximum will be between 2 and 5 minutes (inclusive) as indicated by the CD before the start of the round concerned.

### **3.1.4.2 Final Classification**

- (a) The aggregate of the competitor's official flight times including fly-offs if required (as specified in 3.1.4.3) shall decide his final placing in the contest

- (b) In F1E contests, scoring will be as a percentage of the maximum time, or (if no maximum is scored) of the highest time scored in the round.

### 3.1.4.3 Fly-Offs

- (a)
  - (i) Competitors who score a maximum on every flight are entitled to make an additional flight
  - (ii) If two or more competitors score the same total time then, at the discretion of the CD and when the competitors concerned have been notified, they shall be entitled to make an additional flight.
  - (iii) The additional flights will determine the order of placing. These flights will be subject to the attempt rule 3.1.6, and must be made in a 15 minute period specified by the CD.
- (b) In Area Centralised contests any competitor returning a maximum score for each of his official flights should make this additional flight even if no other maximum score has been returned in his Area; the additional flight must commence within the hour following the close of the contest and must commence within 15 minutes of the starting signal being given.

### 3.1.5 Procedure of Starts

- (a) Each competitor must wind the rubber motor, start and adjust the engine, tow his own glider and launch his own model (other than glider).
- (b) Hand launching is allowed in all BMFA contests.
- (c) A competitor when launching a model must be on the ground but nothing contained in this rule shall prevent a competitor making a leap or jump at the moment of launching.
- (d) During a Centralised FAI contest, for classes F1A, F1B, F1C and F1Q, launching must take place within 5 metres of a launch line which will be positioned perpendicular to the wind at the beginning of the round. The line will be deemed to be of infinite length. For the F1A class the helper must position himself within the required 5 metres before the launch.
- (e) For F1E contests, the Contest Director will indicate any restrictions affecting the launching point. Rule 3.1.8.3 will apply.

#### 3.1.5.1 Glider Launching

##### (a) Towline Length

The towline length for Vintage, Mini Vintage and Tailless gliders shall be 100m (328ft) maximum, for BMFA gliders (ii) and Classic gliders 75m (246ft) maximum. For all other classes it shall be 50m (164ft). The length shall be measured when subjected to a tensile load which is dependant on the Surface Area of the glider as in the list below. (Surface Area is defined in the notes at the start of this Rule Book)

Up to but not including 16 dm <sup>2</sup> (248 in <sup>2</sup> ) .....	1 kg (e.g. Below A1 size)
From 16 dm <sup>2</sup> (248 in <sup>2</sup> ) up to but not including 32 dm <sup>2</sup> (496 in <sup>2</sup> ) .....	2 kg (e.g. A1 up to A2)
32 dm <sup>2</sup> and above.....	5 kg (e.g. A2 size and above)

### **(b) Pennant**

To facilitate observing the moment of release a pennant with a minimum area of 2.5 dm<sup>2</sup> (39 in<sup>2</sup>) must be fitted near to the glider end of the towline. A parachute may be used in place of a pennant provided that it remains furled and inactive until the moment of release.

### **(c) Fittings**

If towing without the use of pulleys then any fitting at the competitors end of the towline must not weigh more than 15 g.

If towing with the use of pulleys then the end of the cable remote from the glider must be anchored to the ground in accordance with BMFA guidelines.

### **(d) Winches and Storing**

The towline must be detached from the winch before towing commences and must not be reattached until after the glider is released. After release the line must be retrieved quickly by the flyer and stored so that it is not a hazard to people or models.

## **3.1.6 Attempts For Official Flights**

Attempts are of three types; scoring, non-scoring and unsuccessful.

The first non-scoring attempt for a flight may be repeated. A second non-scoring attempt for the same flight gives a zero score for the flight. An unsuccessful attempt may be repeated without penalty.

### **3.1.6.1 Scoring Attempts**

Scoring attempts are defined as flights of 20 seconds or longer which are not covered by rules 3.1.6.2 or 3.1.6.3 or a flight of less than 20 seconds which is not covered by rules 3.1.6.2 and 3.1.6.3 if the competitor demands that the score be accepted. For a flyer to appear in the results he must return a score greater than zero.

### **3.1.6.2 Non-Scoring Attempts**

Non-scoring attempts are defined as;

- (a) When the engine of a mechanically powered model runs for more than the prescribed time. The engine run shall be deemed to have terminated at the time when all audible noise from the engine ceases.
- (b) When a glider still attached to its launching cable touches the ground or an object except as detailed in 3.1.6.3.
- (c) When some part of the model (except for rubber bands or equivalent used for dethermaliser equipment) becomes detached during the launch or in flight.
- (d) When a flight is of less than 20 seconds unless claimed as in 3.1.6.1 above.

### **3.1.6.3 Unsuccessful Attempts**

An unsuccessful attempt is defined as one in which either:

- (a) The model collides with a person (other than the person who launched it) when being launched.
- (b) During towing the model collides with a model in free flight (but not with a model being towed or a towline) and the towing cannot continue normally.
- (c) During the flight the model collides with another model or tow line.

- (d) A timekeeper fails to record the time of flight or motor run due to circumstances which, in the opinion of the CD, are beyond his control and unless there is other evidence of the time which is acceptable to the CD.

In the case of (a), (b) and (c) above, should the model continue its flight in a normal manner, the competitor may demand that the flight be accepted as an official flight, even if the demand is made at the end of the flight.

### **3.1.7 Cancellation of Flights**

The flight scores zero:

- (a) If the competitor, after processing, modifies his model by changing any item of the specification required by the regulations.
- (b) When two non-scoring attempts have been made for the same flight.
- (c) When no attempts are made for a flight.
- (d) When a glider competitor commences a flight with the winch attached to the towline.

### **3.1.8 Timekeeping**

#### **3.1.8.1 General**

Any BMFA member, or person as may be approved by the CD may act as a timekeeper. The CD may at any time and without giving reasons, restrict a competitors choice of timekeeper as long as alternative timekeepers are available. For fly-offs, the CD may appoint time keepers who are, as far as possible, unconnected with the competitor. A competitor may not act as official timekeeper for his own flight.

At all times competitors, helpers and spectators should allow the timekeeper(s) an unobstructed view of the model whilst its flight is being timed. No competitor, helper or spectator should in any way apply pressure to the timekeeper(s), which may influence them and lead to an unsporting result.

#### **3.1.8.2 Recording Times**

- (a) Flights and engine runs must be timed by one or more timekeepers using stopwatches recording to at least 1/10th of a second. The flight time recorded shall be the mean, to one place of decimals, of the times registered, which is then rounded down to the whole second below. In the case of power models, the engine run recorded shall be the mean, to two places of decimals, of the times registered, which is then rounded down to the 1/10th second below
- (b) In contests for power models, two stopwatches or a split-action stopwatch may be used by a single timekeeper to record the duration of the engine run and the flight time.
- (c) On conclusion of each flight, the flight time and, where appropriate, the time of the engine run are to be entered on the competitors flight card by the timekeeper(s) (who should enter their name plus BMFA number and Club if appropriate) and on the score sheet by the recorder. The averaging and rounding of scores must be done before applying the appropriate maximum. It is the competitor's responsibility to ensure that the flight card is filled in correctly.
- (d) If a timekeeper fails to record a time refer to 3.1.6.3.(d).

### **3.1.8.3 Timekeepers**

- (a) When timing commences the timekeeper must be standing on the ground within 15 metres of the point where the model is released or launched. In the case of gliders, the point of launch shall be taken to be the point where the assistant is standing prior to commencement of the launch.

Free Flight Technical Committee clarification - For timekeeping purposes in class 3.15 (Hand Launched Glider), the point of launch is to be taken as the perimeter of the designated 25 metres square launch box, the timekeeper being outside but within 10 metres of the box.

- (b) During the flight the timekeeper, whilst remaining on the ground, may move freely within a 15 metre radius circle (the centre of which is the point at which the timekeeper is standing at the moment of launch) to obtain the best possible view of the model being timed.
- (c) In the event of poor visibility the CD may allow timekeepers to follow the model on foot whilst timing. Timekeepers may be allowed to follow only when qualifying flights (not fly-offs) are being made.
- (d) When the start and finish of a flying period is marked by a continuous audible signal, the end of that signal defines the period.

### **3.1.8.4 Time of Flight**

The time of flight is taken from the moment the model is released, or in the case of a glider when the towline becomes detached from the model, to the end of the flight when either the model touches the ground, comes to a standstill by striking an obstacle (except as in 3.1.6) or disappears from the sight of the timekeepers. If a model disappears either behind an obstacle or otherwise and in the opinion of the timekeepers might re-appear, then timing shall continue for a further measured or estimated 10 seconds. If in this 10 second period the model re-appears then timing will continue. If the model does not re-appear within this 10 second period then the watches should be stopped and the times registered reduced by 10 seconds.

### **3.1.8.5 Vision Aids**

Binoculars, telescopes or other magnifying aids may be used by the timekeepers to observe all flights. The magnification of such devices shall be no greater than eight.

### **3.1.8.6 Stopwatch Malfunction**

Should a solitary timekeeper have a stopwatch malfunction the CD at his discretion may accept impartial evidence as to the duration of the flight. If impartial evidence is not available, the flight shall count as an unsuccessful attempt.

## **3.1.9 Contests Types**

### **3.1.9.1 Single Class Contests**

Single Class Contests shall be those held for individual classes as defined by the relevant class rules

### **3.1.9.2 Two Class Contests**

Two Class Contests shall be those held for two individual classes as defined by the relevant class rules e.g. F1J/British 1/2A Power, C02/E30, HLG/CLG

### 3.1.9.3 Combined Class Contests

Combined Class Contests shall be those held for a combination of individual classes as defined by the relevant class rules (the rule numbers of these are appended for easy reference).

For these events the combinations of classes shall be:

- (i) Combined Glider: F1A (3.3)  
BMFA Glider (3.7.1)  
Classic Glider (3.18)  
Vintage Glider (3.18)
  
- (ii) Combined Rubber: F1B (3.4)  
BMFA Rubber (3.7.2)  
Classic Rubber (3.18)  
Vintage Rubber (3.18)
  
- (iii) Combined Power: F1C (3.5)  
BMFA Power (3.7.3)  
SLOP (3.19)  
Classic Power (3.18)  
Vintage Power (3.18)  
Open Electric (3.48)  
F1Q (3.51Q.1 & 2)

### 3.1.9.4 Team Contests

- (a) Team contests are those Free Flight events run under the jurisdiction of the BMFA Council in which contestants compete individually (thereby competing for Senior Championship points) but in which affiliated clubs may nominate up to three club members as a team. An individual may only compete as a member of the club specified upon his BMFA/SAA membership card when making his first competition entry of the season, regardless of whether that event was a team or "club points" scoring event. He will then be tied to that club for the rest of the season. Under exceptional circumstances (e.g. moving to the other end of the country) a move to another club may be permitted. This will require recording with the BMFA/SAA office and receipt of a new membership card before attending his first competition for the new club and will only be permitted where application is made before 1st July. Where such a change is made any points scored before the change shall remain with the club for which they were originally scored. For Area Centralised competitions all members of a team must compete at the same venue.
- (b) A club may nominate more than one team but no member may be nominated for more than one team.
- (c) Scoring for team placing shall be effected by adding together the score of all members of a team. In the event of a tie, fly off times shall be used to decide a team's placing (see 3.1.4.3). In the event of a tie in which no team member has a maximum score the tying teams will share the team placing.

- (d) Each club shall nominate to the CD all members of their team(s) before any flights or attempts are made by any member of such team(s). A club is permitted to nominate further teams at any time after the earlier nominated team has commenced flying.
- (e) No trophy is awarded to the competitor with the highest individual score.

### 3.1.10 The Plugge Cup

- (a) The Plugge Cup is awarded annually to the club scoring the highest number of points in the following contests:

K & MAA Cup	Halifax Trophy	Weston Cup
'Model Engineer' Cup	Keil Trophy	Farrow Shield

together with two additional competitions at each of the six area centralised events as nominated in the contest calendar

- (b) The points gained by the leading two competitors of each club, irrespective of whether they are in the same team entered by that club, will determine the score for their club, and for this purpose a fly-off may be made in team events, when not required under 3.1.9.4(c), solely for the purpose of determining Plugge points.
- (c) The method of awarding points is as follows:

The top scorer in each contest is credited with 100 points, other competitors scoring according to the formula

$$\frac{100 (n + 1 - p)}{n}$$

where 'n' equals the number of competitors making one or more scoring attempts and 'p' equals the placing of the competitor in the individual results of the contest. In calculating the points allocation, any numbers following the decimal point will be disregarded.

### 3.1.11 British Senior Free Flight Championship

- (a) The Championship will be awarded annually to the competitor who gains the most points, on the basis of 3.1.11.(b), in the competitions defined in 3.1.11.(c).
- (b) Points will be awarded as in the following table:

Place	Number of Scores					
	6 or More	5	4	3	2	1
1 <sup>st</sup>	9	6	4	3	2	1
2 <sup>nd</sup>	6	4	3	2	1	-
3 <sup>rd</sup>	4	3	2	1	-	-
4 <sup>th</sup>	3	2	1	-	-	-
5 <sup>th</sup>	2	1	-	-	-	-
6 <sup>th</sup>	1	-	-	-	-	-

At the extreme case of only one score returned that contestant would be awarded 1 point only.

In the event of a tie for any placing, the competitors with that placing will share equally the points which would have been awarded to the placings covered by that number of competitors.

All BMFA free flight competitions, as defined in section (c), are eligible except for team selection competitions for F1A, F1B and F1C. At each competition a competitor may enter and fly in as many classes as desired but from each single-day competition only a maximum of two points scores shall be eligible towards the season's total score. At multiple-day competitions each day shall be treated as a single day competition.

If there is a tie after the season's scores are totalled the number of a competitors scoring places shall be used to resolve this tie. The places used shall start with first and then subsequent places until a resolution is achieved. For example, if two competitors tied with equal points and both had equal numbers of first, second and third places, then the competitor with the highest number of fourth places would be the winner.

- (c) A list of competitions which are scheduled to be used in any particular year may be obtained from the BMFA Competition Secretary after the 31<sup>st</sup> January of that year. If a competition on the list is cancelled then the Championship will depend on the remaining competitions.

### **3.1.12 British Junior Free Flight Championship**

- (a) The championship will be awarded annually for performance in the events at the Free Flight Nationals with the exception of the Women's Cup, the Bowden Trophy and additional field entry events
- (b) the scoring will be on total recorded time, excluding any fly-off scores except as in (c) below.
- (c) in the case of a tie fly-off scores will be included and if still unresolved a countback of Junior placings will be used with the lowest total being the winner.
- (d) Competitors will be qualified to enter junior competitions if they are 18 years of age or under at 1st January of the year of the contest.

### **3.1.13 Club Championship**

- (a) The Club Championship is awarded annually to the club gaining most points in the Combined Glider, Combined Rubber and Combined Power competitions at a BMFA Centralised event. The event to be used in any year will be specified in the Competition Calendar for that year.
- (b) Points will be awarded by the same method as used for the Plugge Cup
- (c) A club's points for classification will be the total of the points gained by their highest placed competitor in each competition.

### **3.1.14 Motor Heaters**

Additional heat may not be applied to the motor.

### **3.1.15 Proxy Flying**

- (a) Should a competitor be incapacitated by injury or illness in the course of a contest and wishes to complete the contest then, with the consent of the CD, he may nominate a proxy to do so (subject to 3.1.15.(b).)

- (b) A proxy flyer must be a member of the BMFA.

### **3.1.16 Protests and Appeals**

- (a) A protest about any infringement of the Contest Rules must be made to the Contest Director (CD) in writing as soon as possible after the alleged infringement and not later than 15 minutes after the close of the contest plus any fly-off period(s). The written protest must state, at least, the person(s) protested against and the rule(s) infringed and be accompanied by a protest fee of double the contest entry fee.
- (b) The CD will immediately empanel a jury of three persons to rule on the protest, all of whom shall be members of the BMFA and selected at random. The jury shall reach its decision having first consulted all parties.
- (c) If the protestor, or the person(s) protested against, is not satisfied with the jury's ruling then either may appeal to the BMFA Council. This is done by sending the written protest and any other relevant information to the BMFA Competition Secretary to arrive no later than two weeks after the date of the contest. The Competition Secretary may ask for, and will accept, further information until the appeal is placed on the agenda of the first possible BMFA Council meeting for adjudication.

### **3.1.17 Ballast**

When it is necessary to use supplementary ballast to obtain the stipulated weight, this must be located internally in the machine and fixed in a permanent manner. When moveable ballast is used to regulate the centre of gravity position the model must be of the specified weight without the moveable ballast.

## **3.2 FAI Contest Regulations**

**3.2.1** Events run for International class models will require such models to conform to the appropriate FAI specifications. Contests will be run in accordance with the Free Flight Contest Rules (3.1) except as modified below.

### **3.2.2 Models**

- (a) Contests for FAI classes F1A, F1B, F1C, F1Q and F1J and F1Q when flown by Juniors (see rule 3.2.4.1 (a) paragraph 2), may be of two types; 5 flight events and 7 flight events (not including fly-offs). Competitors may enter and have checked 3 models for 5 flight events and 4 models for 7 flight events. Additional models shall not be allowed for fly-offs.

NOTE - This rule was clarified during 1991 and flyers should be aware that they may utilise any combination of models, within the numbers allowed, that they wish. For instance, in a 5 flight event, they may make their 5 official flights with one or two models, reserving their third model solely for a fly-off if needed.

- (b) In contests for FAI class F1E, competitors may enter and have checked 5 models and are entitled to 5 official flights.
- (c) Competitors may interchange the various parts of their models provided the resulting model conforms to the rules.
- (d) Competitors may use spare propellers and rubber motors or piston engines. A piston engine may not be used by more than one competitor in a particular contest.

- (e) Repairs are permitted provided they do not in any way alter the specification of the model as defined in the rules.
- (f) In Area Centralised contests where 5 flights are flown, 3.1.2 Free Flight contest rules apply.
- (g) In F1A, F1B, F1C, F1E and F1Q or F1J and F1P when flown by juniors in F1C competitions any models which are flown in the competition must be the property of the competitor before the competition commences and the only membership number carried on the models must be that of the competitor.

### **3.2.3 Fly-Offs**

In order to decide the winner where there is a tie, additional deciding flights shall be made after the last flights of the event have been completed. Two attempts are allowed for each of these additional flights within the scope of rule 3.1.6.3. Should bad weather, lack of time or daylight make progressive fly-offs impractical, a single fly-off to rule 3.1.4.3 may be used at the CD's discretion. In Area Centralised events, rule 3.1.4.3 shall apply.

The set maximum time of flight in each additional round shall be incremented by two minutes on the flight in the previous round, where 'previous round' also includes the last flight of the event, but at any stage in the fly-off the Contest Director may modify these increments to accommodate the prevailing conditions or circumstances.

Note - Increments may be positive or negative but must be applied before the start of the additional round and must apply for the whole of that round.

### **3.2.4 Team Selection Events**

#### **3.2.4.1 Team Selection F1A, F1B, F1C, F1J and F1P**

- (a) Three FAI Team Selection events will be included in the Contest Calendar for the purpose of selecting the Senior World and European teams for F1A, F1B and F1C in the following year and the Junior World and European teams for F1A, F1B, F1J and F1P in the following year.

At all UK F1C events, in order to provide a selection process and practice opportunities for a UK junior power team, juniors only may compete with F1J and F1P models flying to the same maximum as F1C and with motor runs as FAI class definitions for F1J and for F1P.

- (b) The best two from three or two from two events are to count towards team selection. If two of the events do not yield any results, the single remaining event will count. If none of the three events take place then the results from the F1A, F1B, F1C contests at the Free Flight Nationals will count (NB the Nationals will not be run to these Team Selection Event rules ). If no events are held and the Nationals does not yield a result, the team will be selected by a ballot of those who competed in the last completed (flown) selection procedure.
- (c) Each event will be either a 'two day' or 'one day' event. Two day events will be programmed to start at 11.00 am on the Saturday, with the start time on the Sundays being determined by the venue availability. One day events will be programmed to start at 9.00am.
- (d) Each two day event will consist of a maximum of seven rounds. Each one day event will consist of a maximum of five rounds. Rounds will be flown from a

starting line. The minimum number of rounds to count towards team selection per event will be one.

- (e) The maximum will normally be 3 minutes. In the event of retrieving restrictions the maximum can be reduced to 2 minutes 30 seconds. An extended maximum may be applied for one round only, to be flown in appropriate conditions.

The maximum must be announced prior to the commencement of the round.

- (f) Round times are to be 30 minutes. A hold between rounds may be applied.
- (g) The contest will be interrupted or the start delayed if:
  - (i) The wind speed is continuously stronger than 6.7m/s (15 mph) measured at a height of 2000mm ±100mm above ground level at the flight line for at least 20seconds.
  - (ii) The visibility prevents proper observation of the models in flight.
  - (iii) If it would be dangerous to continue.
  - (iv) If it is necessary to reposition the starting line. (this will only take place between rounds).

In the event of an interruption during a round, the remainder of the round will be completed as soon as conditions allow.

- (h) If, at the end of the rounds, irrespective of the number flown, two or more competitors share equal scores in any one event, then placings in the event will be determined by a fly-off, with the maximums determined to suit the prevailing circumstances. If at any stage those competitors with equal scores elect unanimously not to flyoff, the points received for each competitor shall be those of the lower of the places. E.G. two competitors sharing 1st place shall receive 2nd place points (45); three competitors sharing 4th place shall receive 6th place points (27).

In the eventuality of a tie for team positions at the end of the final event, the final placings are to be determined by a fly-off (preferably at the last team selection event, but, if circumstances dictate, at a subsequent agreed time and venue within the UK). The same stipulations with regard to maximums and points sharing as in the above paragraph shall apply.

Fly-offs shall be conducted in accordance with rule 3.2.3.

- (i) The scoring system is based on the following table:

<b>Points Table</b>											
Place	1	2	3	4	5	6	7	8	9	10	11
Points	50	45	40	35	30	27	24	21	18	16	14
Place	12	13	14	15	16	17	18	19	20	21	22
Points	12	10	9	8	7	6	5	4	3	2	1

Any competitor who has made a scoring flight and has not been allocated points by the Points Table will be awarded one point.

### **3.2.4.2 Team Selection F1E**

- (a) Five centralised competitions and a reserve will be nominated each year for the purpose of selecting a team for either the World or the European F1E Championships in the following year. The competitions will be run to FAI rules and percentage scoring in the rounds will be to the FAI Sporting Code.
- (b) Dependant on their placing in these competitions each competitor will be awarded points in accordance with the table in 3.2.6.1.(i). Only the competitor's best three results will count for team selection points.
- (c) If the selection competitions flown do not produce a team then the FFTC shall take appropriate action.
- (d) The number of rounds planned to be flown must be between 5 and 7 inclusive and must be announced before the start of the competition. The maximum time for each round must be between 2 and 5 minutes inclusive and must be announced before the start of that round.
- (e) If fewer than 3 rounds can be flown then the contest shall be null and void.

### **3.2.5 Launching**

#### **3.2.5.1 Launching Devices F1A**

Must conform to 3.1.5.1

#### **3.2.5.2 Launching: F1A**

- (a) The competitor must be on the ground and must operate the launching device himself.
- (b) All freedom of action and movement is permitted to allow the best use of the cable, except throwing of the launching device.
- (c) The model must be launched within approximately 5 m from the starting line position.

#### **3.2.5.3 Launching: F1B**

- (a) Launching is by hand, the competitor being on the ground (jumping allowed).
- (b) Each competitor must wind his motor and launch the model himself.
- (c) The model must be launched within approximately 5 m from the starting line position.

#### **3.2.5.4 Launching: F1C and F1Q**

- (a) Launching is by hand, the competitor being on the ground (jumping allowed).
- (b) Each competitor must start and regulate the engine/motor or engines/motors and launch the model himself.
- (c) The model must be launched within approximately 5 m from the starting line position.

- 3.3 Characteristics of Gliders, World Championship Formula 'A/2' (Class F1A)**  
 Total projected surface area.....32 to 34 dm<sup>2</sup> (496 to 527 in<sup>2</sup>)  
 Minimum total weight..... 410 grams (14.46 oz)
- 3.4 Characteristics of Rubber Driven models, World Championship Formula 'Wakefield' (Class F1B)**  
 Total projected surface area.....17 to 19 dm<sup>2</sup> (263.5 to 294.5 in<sup>2</sup>)  
 Minimum weight of model less motor(s) ..... 195 grams (6.86 oz)  
 Maximum loading .....50 g / dm<sup>2</sup> (16.38 oz / ft<sup>2</sup>)  
 Maximum weight of motor(s) lubricated..... 30 grams
- 3.5 Characteristics of Power Driven Models, World Championship Formula (Class F1C)**  
 Maximum cylinder capacity of engine(s) ..... 2.5 cm<sup>3</sup> (0.1526 in<sup>3</sup>) total  
 Minimum total weight (per engine capacity) ..... 300 g / cm<sup>3</sup> (10.58 oz / cm<sup>3</sup>)  
 Minimum loading .....20 g / dm<sup>2</sup> (6.55 oz / ft<sup>2</sup>)  
 Maximum duration of engine run ..... 5 seconds from release of model  
 One standard fuel formula is prescribed for spark ignition or glow type engines and no other fuel is permitted:  
     80% Methanol : 20% castor or synthetic oil  
 Engines of the diesel or compression ignition type are not restricted as to the fuel they use. No extension whatever is allowed to the exhaust opening(s) of the engine.
- 3.6 Characteristics of Slope Soaring Gliders, International Championship Formula (Magnet Steered) (Class F1E)**  
 Maximum total projected surface area .....150 dm<sup>2</sup> (2325 in<sup>2</sup>)  
 Maximum loading .....100 g / dm<sup>2</sup> (32.76 oz / ft<sup>2</sup>)  
 Maximum flying weight ..... 5 kg (176.37 oz)  
 NOTE: For classes F1A, F1B, F1C and F1E the total projected surface area should be used to calculate the wing loading.

## **3.7 BMFA Classes**

There are no restrictions on model size, weight or design other than those imposed by the General regulations (1.2) and those specified below. Contests will be run in accordance with Free Flight Contest Rules (3.1).

### **3.7.1 Towline Glider Class (BMFA Glider)**

Must conform to 3.1.5.1

Two types of model are permitted:

- (i) Models fitted with bunt launching and/or circle tow devices.
- (ii) Models not fitted with devices to allow bunt launching or circle towing; auto-rudder is permitted.

#### **Clarification from the Free Flight Technical Committee**

Models fitted with bunt mechanisms or circle tow hook facility of any type (including swinging or offset) will only be permitted a 50 metre towline allowance. To qualify for the 75 metre towline allowance the model must have a permanently fixed hook that does not permit any movement of the model's surfaces either while connected to the towline or after launch. A once-off rudder movement (auto rudder) is permitted, as is any form of DT.

If the model is capable of circling in any way while attached to the towline then only a 50 metre line will be permitted.

If a flyer wishes to convert a model that has been previously fitted with bunt mechanisms or circle tow hooks of any type then the previous tow hook must be replaced with a solid permanently fixed hook. Temporary or partial disablement of a previously multi functional hook will not be sufficient. A bunt mechanism or its operating line must have been removed.

It is not the intention of these rules that models should be convertible from one status to another during the process of a contest. The object of the variation in towline length is to compensate the users of "less sophisticated" trim technology, and hence lower performance, with longer towlines. All categories within the class are intended to have a similar overall performance potential.

### **3.7.2 Rubber Class (BMFA Rubber)**

The amount of rubber used shall be restricted to 50 grams (lubricated).

### **3.7.3 Power Class (BMFA Power)**

The maximum engine run allowed from the moment of release of the model will be:

- (i) For models fitted with mechanisms to enable bunt transition from power on to glide: 5 seconds
- (ii) For models not fitted with bunt transition mechanisms but fitted with other moving trim surfaces: 7 seconds.
- iii) For models not fitted with any moving trim surfaces other than DT: 10 seconds

N.B. category (iii) above are not SLOP models. SLOP models and contests have different rules. However, if a competitor wishes to fly a SLOP model in an Unrestricted

class contest he/she will receive the 10 seconds run allowance of category (iii). (Note that in 2006 the run allowance would only have been 7 seconds.)

### **Clarification from the Free Flight Technical Committee**

All models fitted with bunt mechanisms will receive only a 5 second motor run allowance unless the mechanism is disabled. Those models with the mechanism disabled for which fliers wish to receive the 7-second motor run allowance must have the mechanism permanently disabled. Temporary disablements using, for example, tape, rubber bands or blocks of wood will not be sufficient. The bunt mechanism or its operating line must have been removed.

It was not the intention of these rules that models should be convertible from one status to another during the process of a contest. The object of the variation in engine runs is to compensate the users of "less sophisticated" trim technology, and hence lower performance, with longer runs and/or towlines. All categories within the class/classes are intended to have a similar overall performance potential.

## **3.11 'Mini' Classes**

### **3.11.1 Mini Contests**

- (a) Mini contests are contests for classes F1G (Coupe d'Hiver), F1H (A/1 Glider), F1J, BMFA 1/2A Power, CO<sub>2</sub> Duration, Mini Vintage, E30 and P30. Note F1J and BMFA 1/2A Power may be combined at a contest when announced as so in the contest calendar.
- (b) Contests for the mini classes shall be run in accordance with the free flight rules 3.1 except as modified below. The general regulation 1.2 applies to all classes.
- (c) In mini contests competitors are entitled to make five official flights for F1G, F1H, F1J and BMFA 1/2A Power classes. For CO<sub>2</sub> Duration, Mini Vintage, E30 and P30 competitors shall be entitled to make three official flights. In all cases the maximum shall be 2 minutes, or less at centralised contests if conditions dictate.

### **3.11.2 Class F1G (Coupe d'Hiver)**

- (a) Model specification:  
Minimum weight of model (less motor(s)) ..... 70 g (2.46 oz)  
Maximum weight of motor(s)(lubricated) ..... 10 g (0.352 oz)

### **3.11.3 Class F1H (A/1 Glider)**

- (a) Model specifications:  
Maximum surface area ..... 18 dm<sup>2</sup> (279 in<sup>2</sup>)  
Minimum weight ..... 220 g (7.74 oz)
- (b) Launching. See 3.1.5.1

### 3.11.4 Class F1J

- (a) Model specification
    - Maximum swept volume of engine ..... 1 cm<sup>3</sup>
    - Minimum total weight (less fuel) ..... 160 g (5.63 oz)
    - Maximum duration of engine run ..... 5 seconds
- The engine run will be timed from the moment of release of the model.
- Fuel constituents are not restricted.

### 3.11.7 BMFA 1/2A Power

- (a) Model specification
    - Maximum swept volume of engine ..... 0.85 cm<sup>3</sup> (0.052 in<sup>3</sup>)
    - Maximum duration of engine run ..... 8 seconds
- The engine must be a plain bearing unit.
- The engine run will be timed from the moment of release of the model.
- Fuel constituents are not restricted.

### 3.11.5 CO<sub>2</sub> Duration

- (a) The combined capacity of the Carbon Dioxide tank and piping system shall not be greater than 3.25 cm<sup>3</sup>.

### 3.11.6 Mini Vintage

- (a) Mini Vintage models are built in accordance with the Vintage rules under 3.18 with the following additional specifications as set out below. Otherwise they are an all class event flown in accordance with 'Mini' rules.
- (b) Rubber models - The flat (i.e. not projected) span shall not exceed 864 mm (34 inches).
- (c) Gliders – The flat (i.e. not projected) span shall not exceed 60". For launching see 3.1.5.1
- (d) Power models - To Vintage rules but excluding 3.18.3.(j). Models must only be powered by diesel engines of maximum capacity 0.85 cm<sup>3</sup>. Engine runs to be 20 seconds maximum.

#### Technical Committee Clarification

Models must be built in accordance with the original design and size, subject to 3.18.3. No 'scaling' from the original size is allowed.

### **3.13 Hand Launched Glider Class**

- (a) The glider must be launched by hand without mechanical aids.
- (b) The launch must be from within a 'box' 25 m. square designated by the CD.
- (c) The Free Flight General Rules apply except for the following:
  - (i) The competitor is allowed 7 official flights, all flights to count. (ref. 3.1.3)
  - (ii) The maximum time recorded for any official flight is one minute.
  - (iii) A scoring attempt is a flight of 10 seconds or longer. (ref. 3.1.6.1)
  - (iv) A competitor may use up to three different models and the combination of parts of these models.

### **3.49 Catapult Glider Class**

- (a) The glider must be launched by means of a catapult, powered only by rubber
  - (i) The maximum weight of rubber allowed is 2 grams and can be made up into any number of strands of any width. (Note: a 12 inch length of 0.25 wide strip weighs close to 2 grams)
  - (ii) The rubber may be attached to a handle. The maximum handle length shall be 6 inches.
- (b) The competitor must launch the glider himself with the catapult held in one hand and the glider in the other.
- (c) The competitor is allowed five official flights, all flights to count. If the class is being flown in combination with the Hand Launch Glider class then the number of official flights allowed will be seven, all flights to count. (ref 3.1.3)
- (d) If a Catapult Glider competition is being held at the same time as a Hand Launched Glider competition then both shall be flown from the same 'box'.
- (e) All other rules shall be as for Hand Launched Glider Class (3.13).

### **3.17 Tailless Classes**

#### **3.17.1 Definition:**

Tailless aircraft will be considered as models having no horizontal or oblique stabilising surface separated from the main plane.

#### **3.17.2 Launching**

- (a) Gliders – See 3.1.5.1
- (b) For power models - the maximum engine run allowed shall be 30 Seconds. Engine capacity shall not be over 3.5 cc. There is no exhaust muffler requirement for this class.
- (c) Neither CO<sub>2</sub> nor electric power is permitted.

## **3.18 Classic and Vintage Models**

These models may be flown in either single discipline events (Vintage Glider, Classic Power etc.) or in all class events (Vintage or Classic)

**3.18.1** A vintage model must be built in accordance with a design that was published prior to 1st January, 1951, or was kitted by that date. (January 1951 issues of magazines are accepted as published in 1950).

A classic model must be built in accordance with a design that was first published or kitted after 30th December 1950 and before 1<sup>st</sup> January 1961 (January 1961 issues of magazines are accepted as published in 1960).

**3.18.2** Competitors are responsible for proving the eligibility of their models and engines to the satisfaction of the Contest Director if required, and must be prepared to produce photo-copies (or originals) of plans and magazines on the day of the contest which include or confirm the date of publication.

### **Guidance from the FFTC for the period of 2008 to be reviewed for 2009**

The eligibility of the model must be based upon the existence of a plan which was published between the specified dates. The purpose of additionally specifying "kitted" is to include those plans which were supplied as part of a kit but were not "published" elsewhere. Where multiple sizes of a design were published or kitted between the specified dates the plan must be for the actual size model entered.

In the special case where a table of model sizes, including lists of material sizes referenced to a plan, was published between the specified dates this information will be sufficient and need not be accompanied by an actual size plan of the model entered.

In all these circumstances the plan, or table of sizes must be supported by photo-copies (or originals) of material which was published between the specified dates and confirms the date of publication or kitting.

Statements, publications or any other material created outside the specified dates are not acceptable as proof of either design features or publication dates.

### **3.18.3 Construction**

Models should follow the construction shown on the plan. No major alteration should be made to structures. Minor modifications may be made as follows:

- (a) Materials may be substituted, e.g. spruce for obechi.
- (b) Balsa laminated sections may replace bent cane.
- (c) Conversion from a one piece to a multi piece wing, multi piece fuselage or detachable fin and vice-versa are permissible but associated changes must not significantly change the external geometry of the model. Plywood dihedral braces and local bandaging are permissible.
- (d) Local sheeting to improve handling of fuselage is allowed and also local sheeting and/or subspars on flying surfaces to take the strain of fixing bands and wing to fuselage contact.
- (e) Power models may have noses altered to suit engine mounting.
- (f) Minor alterations may be made to enable a D/T to be fitted to a design which was not originally so fitted.
- (g) Wheels must be of the same diameter as shown on the plan but the cross section may be changed.

- (h) Rubber model propeller block sizes must be adhered to, as must the type; single bladed or twin bladed; free wheeling or folding. Note: The pitch, diameter and blade width of the propeller must not be altered from that which is outlined by the propeller block size. Free wheel clutches, rubber hooks and tensioning devices may be to the competitor's choice. Propeller hubs must be of the style and material shown on the plan (e.g. replacement of wooden hubs with bent wire or wire hubs with machined metal etc. are not permitted). Gears are not permitted unless shown on the original plan and vice versa.
- (i) Engine and D/T timers of a type not used on the original design may be used, but auto rudders and other trim-changing devices may only be used if shown on the original plans, except in the case of gliders, where an auto rudder operated by the release of the launching cable, and constructed in accordance with designs published prior to 1<sup>st</sup> January 1961 is permitted.
- (j) Power models may use any type of engine and propeller, other than folding propellers, and mechanical engine brakes cannot be used.
- (k) Turbulators may be added to any component of the model provided that the type of turbulator used has been described in a publication dated prior to 1st January 1951 for vintage models, or prior to 1st January 1961 for Classic models (refer to 3.18.1).

**3.18.4** For power models, the maximum engine run allowed from the moment of release of the model will be:

- (i) For Classic models, 12 seconds.
- (ii) For Vintage models 18 seconds.

**3.18.5** For rubber models, the maximum amount of rubber used shall be:

- (i) for Classic models restricted to 75 grams (lubricated)
- (ii) for Vintage models restricted to 100 grams (lubricated)

**3.18.6** For glider launching see 3.1.5.1

## **3.19 Slow Open Power**

- (a) Slow open power contests will be run in accordance with the Free Flight rules (3.1) except as modified below.
- (b) Models shall have no timed moving surfaces apart from dethermalisers.
- (c) Fuel supply shall be suction only, i.e. no pressurisation of tank either from the engine or from a self pressurising tank.
- (d) Engines up to a maximum of 3.5 cm<sup>3</sup> may be used but they shall have plain journal bearings as manufactured and not have modified bearing systems. Mechanical (friction) engine brakes are not permitted. Folding propellers are not permitted.
- (e) The maximum engine run allowed from the moment of release of the model will be 10 seconds for glow ignition and 12 seconds for diesel or spark ignition.

## 3.40 The Wakefield Rules

**3.40.1** Prior to its adoption by the FAI as the world international free flight rubber class, F1B, there were two main sets of rules in force at different periods of the Wakefield competition. These model specifications are reproduced here for the historic record. They have been extracted exactly as set out in the official literature of events run at the time.

For those wishing to run BMFA sponsored competitions to these rules, models shall conform to the original specification and design, in accordance with Section 3.18, Vintage Models, and shall be flown under Section 3.1.

### 3.40.2 The 1934 - 36 Rules

(a) The contest shall be for rubber driven fuselage models. The rubber motor must be concealed, and the fuselage or fuselages must be fully covered and conform to the formula:

$$\text{Minimum value of maximum cross sectional area of fuselage} = \\ (\text{Overall length of model})^2 / 100 \text{ (in}^2\text{)}$$

(b) The following conditions must be complied with regarding the wing area and weight of the model.

(i) Total area of mainplane to be 200 in<sup>2</sup> plus or minus a tolerance of 10 in<sup>2</sup>

(ii) No model shall have a weight of less than 4 ounces.

Note - The following rules (c) to (f) are procedural relating to model use and are included for historic interest only. However they may be used for guidance by those wishing to run competitions under the original conditions.

(c) The competition shall be for duration flight, such duration being taken from the time the model is released until it first touches some solid obstacle or until passing out of sight of the judges.

(d) Each model must rise from the ground from a standstill entirely under its own power, no push whatever being permitted.

(e) Each entrant shall be allowed three attempts during the competition. The average duration of the three attempts to be counted.

(f) Minor adjustments may be made between competition flights, but trial flights may only be made with the consent of the judges.

### 3.40.3 The Pre - 1951 Rules

Several rule changes were made in the years after 1936 and these resulted in a class which was substantially the same up to the end of 1950. These rules are often called

**the 'pre - 1951 rules.**

(a) The contest shall be for fuselage rubber driven models. The rubber motor or motors of which must be enclosed, and the fuselage or fuselages must be fully covered and conform to the formula:

$$(\text{Overall length of model})^2 / 100 = \text{Minimum area of the maximum cross section.}$$

- (b) The following conditions must be complied with regarding the area of the surfaces and the weight of the model:
  - (i) The total area of the main plane or planes to be 200 in<sup>2</sup> with a plus or minus tolerance of 10 in<sup>2</sup>. The area being the actual plan area of the cambered surfaces measured on the chord line without allowance for dihedral angle or polyhedral angle etc.
  - (ii) The area of the tailplane shall not exceed 33% of that of the mainplane(s).
  - (iii) No model shall have a total weight of less than 8 ounces.
- (c) The model, including the propeller(s), must be constructed by the entrant. Gearboxes (when used) must also be constructed by the entrant, with the exception of the gear wheels. Commercial timer units may be employed.
 

Note - The following rules (d) to (j) are procedural relating to model use and are included for historic interest only. However they may be used for guidance by those wishing to run competitions under the original conditions.
- (d) Each model must rise from the ground from a standstill, entirely under its own power, transmitted by the propeller(s), and no push is permitted. Models, when starting, may only be held by the propeller(s) and by the wing tip. Holding the model for release by any other part shall lead to immediate disqualification from that round.
- (e) No part of the model shall become detached in flight.
- (f) Models shall be check weighed prior to each round.
- (g) Each entrant will be allowed three flights during the contest, the average duration of the three flights shall be recorded as the entrant's score. An attempt of 5 seconds duration or under will be recorded as a 'no flight', but only three such attempts for each round will be allowed. In the latter event the highest 'no flight' time shall constitute the recorded time for that round.
- (h) In each of the three rounds 5 minutes (300 seconds) will be the highest times recorded. At the end of the third round any competitor having the maximum score of 15 minutes (900 seconds) shall fly-off a fourth round in which no time limit of duration shall be imposed. In the event of a model being lost or irreparably damaged in the third round, a reserve model may be employed for the fly-off.
- (j) Minor adjustments or repairs, but no replacements other than rubber motor(s) and/or propeller(s) may be made between competition flights. Repairs or trial flights may only be made with the consent of the judges, and after each repair the model must be re-weighed and re-checked and must possess the same characteristics as originally

#### **3.40.4**

The other rules mentioned in the official literature of these events are purely procedural and do not refer to the model specifications or use.

### **3.41 P.30 Rubber**

#### **3.41.1 The Model**

Maximum projected span ..... 30 inches

Maximum length of fuselage including propeller and any release D/T wires..... 30 inches

Minimum weight of model, less motor ..... 40 grams

The model shall have no timed moving surfaces apart from dethermalisers

#### **3.41.2 The Propeller**

Only a commercial plastic propeller with a maximum diameter of 9.5 inches may be used. The hub may be modified to fit the shaft and for freewheeling purposes but not for folding. Plastic may be removed from the surface of one blade for balancing purposes only. The diameter, pitch and blade shape may not be altered.

#### **3.41.3 The Motor**

Maximum of 10 grams (lubricated) rubber motor which must be enclosed within the fuselage.

### **3.42 E.30 Electric**

Model Specification

Maximum projected span ..... 30 inches

Maximum overall length ..... 30 inches

Maximum propeller diameter ..... 6 inches

Minimum weight ..... 100 Grams

Maximum battery size..... 3 x 50 mAh cells

### **3.48 Electric Open Power**

(a) Motor maximum size ..... 600, brushed type only.

(b) Motor Run, maximum time from launch ..... 28 seconds

(c) Timing of motor run.

The motor run is to be verified by the timekeeper check timing on the ground before flying. The timekeeper shall mark the flight card to affirm this (it is only required that the ground timing procedure is carried out before the first flight). In addition the motor run shall be checked visually during each flight. If the model has not clearly stopped climbing under power after 28 seconds an over-run shall be declared.

### **3.47 The Bowden Class**

- 3.47.1** The contest is a two-flight contest.
- 3.47.2** Models shall be powered by Petrol, Compression Ignition (Diesel), or Glo-plug engines only. Radio control is not permitted. The model shall have a cabin with clear glazing or a cockpit with a suitably sized aperture and a clear windscreen.
- 3.47.3** Only 1 model may be entered by each competitor & the Builder of the Model Rule (3.1.1(b) (i) will apply. Proxy flying will only be allowed for overseas entries or for competitors who have a relevant disability and have obtained prior permission from the CD.
- 3.47.4** Each competitor shall be allowed two flights, each with a target duration of 45 seconds. Flights below the minimum of 30 seconds or above the maximum of 60 seconds will be disqualified. Engine & d/t timers are allowed but flights where a dethermaliser, or other device to cause a rapid descent, operates before the model lands shall be disqualified.
- 3.47.5** The model must rise off the ground following release in a horizontal attitude from a line defined by the judges. One assistant only is allowed to accompany each competitor to the Take Off Area for the purpose of carrying &/or retrieving the model or starting accessories only. No assistance whatever is allowed to the competitor whilst starting the engine or during takeoff. If this rule is broken the flight will be disqualified. Should the model not be released within two minutes from a signal given by the judges, the flight will be disqualified. Within this 2 minutes one false start will be allowed, namely, a run or flight of less than 5 seconds. Pushing or assisting the model in any way during take off will involve automatic disqualification from that round. On release the arms must be raised sideways from the model and any forward movement of the arms will count as a push.. Timing commences on release of the model. The model may be in contact with the ground in the first ten seconds after release. After the first ten seconds the BMFA rule for Time of Flight (3.1.8.4) applies.
- 3.47.6** A competitor will be credited with 100 points for each flight (subject to cancellation or disqualification under the terms of 3.47.4 and 3.47.5 above). One point will be deducted for each second or part of a second flown above or below the target duration of 45 seconds.
- 3.47.7** For each flight further points will be deducted at the judges' discretion for failures to conform to the guidelines in the following categories:
- (a) General Design and Appearance Guidelines:
    - A stylish model with cockpit details, cowlings, fairings and undercarriage well executed.
    - Neat building and finish. Clean and well presented.
    - Repairs may be effected between flights as necessary, up to 10 points may be deducted on the second flight for any signs of damage from the first flight.
    - Maximum deduction ..... 20 points
  - (b) Starting and Release Guidelines:
    - Prompt starting
    - No stopping and restarting
    - Calm handling of model and accessories.
    - Maximum deduction ..... 5 points

- (c) Take Off Guidelines:  
 A long straight take off with wings level during the run with the model becoming airborne within 10 seconds of release.  
 Any excessive swing or an immediate leap into the air following release will incur penalty points.  
 Maximum deduction ..... 5 points
- (d) Power Flight Guidelines:  
 Steady climb without power stalling  
 Consistent engine run, does not speed up excessively before cut out  
 Good turn radius, no spiral instability.  
 Maximum deduction ..... 5 points
- (e) Glide Guidelines:  
 Smooth transition to glide  
 Steady glide without stalling  
 Good turn radius  
 Maximum deduction ..... 5 points
- (f) Landing Approach Guidelines:  
 Gentle rate of descent  
 Flares nicely on nearing ground  
 Not upset by low level turbulence.  
 A good shallow approach flaring out for touch down will not incur penalty points. If the model lands on grass following a good approach & noses over no points will be deducted.  
 Maximum deduction ..... 5 points

**3.47.8** The aggregate score awarded for the 2 flights will determine the competitor's placing. If this does not produce a result then the tied competitors will be required to make further fly-off flights as necessary

**3.47.9** The General Competition and Power Model Rules apply where relevant.

## **3.52 Operational Guidance for Bowden Class Contests**

### **3.52.1 Object**

This trophy is intended to encourage the design & flying of Sports Models with cabins or cockpits able to hold an imaginary pilot. The flying of these models in a controlled manner is an exacting competition of Precision, Flight Stability & Appearance.

Models may be powered by either Petrol, Diesel or Glow-plug motors.

Proxy flying will only be allowed for overseas entries or for competitors who have a relevant disability and subject to the permission of the CD.

### **3.52.2 Officials**

There should be a team of 4 officials. 2 Judges, 1 Timekeeper and 1 Marshall. The Marshall should be in the competitors area to call forward fliers to the Flight Line in the correct sequence.

### **3.52.3 Identification**

When competitors are called forward they should confirm their name & model to the Marshall before approaching the flight line.

### **3.52.4 Starting Order**

Competitors draw for their starting order & should be called forward to fly in sequence from the Take Off area. A nominated length of time should be allowed from the time the judge says GO to when the model must be airborne.

### **3.52.5 Spectators.**

Spectators should at all times remain behind the Flight Line for their own safety & must not encroach into the flying area.

### **3.25.3.1 Class F1A - Gliders - Full FAI Rules**

#### **3.1.1 Definition**

Model aircraft which is not provided with a propulsion device and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight except for changes of camber or incidence. Model aircraft with variable geometry or area must comply with the specifications when the surfaces are in minimum and maximum extended mode.

#### **3.1.2 Characteristics of Gliders F1A**

Surface area (St) ..... 32 - 34 dm<sup>2</sup>

Minimum weight ..... 410 grams

Maximum length of launching cable loaded by 5 kg..... 50 m

Rule B.3.1. of Section 4b does not apply to class F1A.

F1A models may use radio control only for irreversible actions to restrict the flight (dethermalisation). Any malfunction or unintended operation of these functions is entirely at the risk of the competitor.

#### **3.1.3 Number of Flights**

- (a) Each competitor is entitled to seven official flights in World and Continental Championships. For other international events the number of official flights is seven unless a different number has been announced in advance and approved by CIAM.
- (b) Each competitor is entitled to one official flight in each round of the event. The duration of rounds must be announced in advance and may not be less than 30 minutes or greater than 90 minutes.

#### **3.1.4 Definition of an Official Flight**

- (a) The duration achieved on the first attempt unless this attempt is unsuccessful under the definition of 3.1.5. (If the attempt is unsuccessful for reason 3.1.5.f and a second attempt is not made then the duration of the first attempt is recorded as the official flight time).
- (b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definition of any of 3.1.5.(a), (b), (c), (d), or (e), then a zero time is recorded for the flight.

#### **3.1.5 Definition of an Unsuccessful Attempt**

An attempt is classed as unsuccessful if the glider 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) The glider returns to the ground without release of the cable.
- (b) The moment of release of the cable cannot properly be established by the timekeepers.
- (c) When a part of the glider becomes detached during the launch or during the flight time.

- (d) It is apparent to the timekeepers that the competitor has lost contact with the cable and the competitor or his team manager chose to declare an attempt.
- (e) It is apparent to the timekeepers that the competitor has lost contact with the cable and the cable is controlled by a person other than the competitor himself.
- (f) The duration of the flight is less than 20 seconds.

### **3.1.6 An attempt may be repeated when:**

- (a) the glider collides with a person, other than the person who launched it, when being launched.
- (b) during towing, the glider collides with a model in free flight (but not with a model being towed (or with a towline) and towing cannot continue normally.
- (c) during the flight the glider collides with another model or a towline other than its own towline.

Should the glider continue its flight in a normal manner, the competitor may demand that the flight is accepted as an official flight, even if the demand is made at the end of the flight.

### **3.1.7 Duration of Flights**

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

In the event of glider recovery problems or to suit meteorological conditions the Jury may permit the maximum for a round to be changed. Such a modified maximum must be announced before the start of the round.

Maximum durations greater than three minutes should only be used for rounds at times when wind and thermal activity are expected to be at a minimum.

### **3.1.8 Classification**

- (a) The total time for each competitor for each of the official flights defined in 3.1.3. is taken for the final classification. This total time achieved is also used to determine team classification.
- (b) In order to decide the individual placings when there is a tie, additional flights shall be made after the last flight of the event has been completed. The maximum time of flight for the first of the deciding flights shall be five minutes and the maximum time of flight shall be increased by two minutes for each subsequent flight. The time of the additional flights shall not be included in the final figures of the classification for teams; they are for the purpose of determining the individual placing.
- (c) The organiser will establish a 10 minute period during which all fly-off competitors must tow and release their glider. Within these 10 minutes the competitors will have the right to a second attempt in the case of an unsuccessful first attempt for an additional flight according to paragraph 3.1.5. Starting positions will be decided by draw for each fly-off.
- (d) If for meteorological reasons or poor visibility or glider recovery problems, a fly-off must be postponed to be flown in the morning, it will be flown as early as daylight and visibility permit in order to avoid thermal activity. The maximum duration of the first flight will be a minimum of ten minutes.

- (e) In the event of exceptional meteorological conditions or glider recovery problems, the Jury may permit the maximum for a round to be changed. Such a modified maximum must be announced before the start of the round.

### **3.1.9 Timing**

- (a) See Section 4b, para B.12.
- (b) The timing of flights is limited to the maximum durations specified in 3.1.7. and 3.1.8. The total flight time is taken from the release of the glider from the launching cable to the end of the flight.

### **3.1.10 Number of Helpers**

The competitor is entitled to have one helper.

### **3.1.11 Launching Devices**

- (a) The glider must be launched by means of a single cable and its length, including release equipment and the launching device shall not exceed 50 metres when subjected to a tensile load of 5 kg. This tensile load shall be applied by means of an appropriate apparatus available to the competitors before and during the competition and also to officials during the competition when checking at least 20% of the gliders. Metal cables are prohibited.
- (b) Launching of the glider by means of this cable may be carried out with the help of various devices such as winches, single or multiple pulley trains, or by running etc. These devices (except the launching cable) must not be thrown by the competitor, under penalty of cancellation of the flight. The competitor may release the launching cable and a lightweight marker (such as a ring, pennant or small rubber ball) at its end.
- (c) To facilitate observation and timing, the cable must be equipped with a pennant, having rectangular shape of a minimum area of 2.5 dm<sup>2</sup> and the smallest side of at least 5cm, attached directly to the main cable.
- (d) All types of auxiliary stabilising devices on the cable are forbidden. A parachute may be substituted for the pennant provided it is not attached to the glider and remains packed and inactive until the release of the cable.

### **3.1.12 Organisation of Launching**

- (a) The competitor must be on the ground and must operate the launching device himself.
- (b) All freedom of action and movement is permitted to allow the best use of the cable, except throwing of the launching device.
- (c) The glider must be launched within approximately 5 metres from the starting position marker.

## **3.26.3.2 Class F1B - Models With Extensible Motors - Full FAI Rules**

### **3.2.1 Definition**

Model aircraft which is powered by an extensible motor and in which lift is generated by the aerodynamic forces acting on surfaces remaining fixed in flight, except for changes of camber or incidence. Model aircraft with variable geometry or area must comply with the specifications when the surfaces are in minimum and maximum extended mode.

### **3.2.2 Characteristics of Model Aircraft with Extensible Motors F1B**

Surface Area (St) ..... 17 - 19 dm<sup>2</sup>

Minimum weight of model aircraft less motor(s) ..... 200 g

Maximum weight of motor(s) lubricated..... 30 g

Rule B.3.1. of Section 4b does not apply to class F1B.

F1B models may use radio control only for irreversible actions to restrict the flight (dethermalisation). Any malfunction or unintended operation of these functions is entirely at the risk of the competitor.

### **3.2.3 Number of Flights**

See 3.1.3.

### **3.2.4 Definition of an Official Flight**

(a) The duration achieved on the first attempt unless this attempt is unsuccessful under the definition of 3.2.5. If the attempt is unsuccessful under the definition of 3.2.5b and a second attempt is not made then the duration of this first attempt is recorded as the official flight time.

(b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definition of 3.2.5.a. then a zero time is recorded for the flight.

### **3.2.5 Definition of an Unsuccessful Attempt**

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) When a part of the model aircraft becomes detached during the launch or during the flight time.

(b) The flight duration is less than 20 seconds.

### **3.2.6 Repeat of an Attempt**

An attempt may be repeated when the model aircraft collides with another model in flight, or a person other than the competitor himself while being launched. Should the model continue its flight in a normal manner, the competitor may demand that the flight be accepted as an official flight, even if the demand is made at the end of the attempt.

### **3.2.7 Duration of Flights**

The maximum duration to be taken for each flight in World and Continental Championships is to be four minutes for the first round and three minutes for subsequent rounds. In other international events a maximum of three minutes will be

used for all rounds unless different durations (not exceeding five minutes) have been announced in advance in the contest bulletin for specific rounds.

In the event of model aircraft recovery problems or to suit meteorological conditions the Jury may permit the maximum for a round to be changed. Such a modified maximum must be announced before the start of the round.

Maximum durations greater than three minutes should only be used for rounds at times when wind and thermal activity are expected to be at a minimum.

### **3.2.8 Classification**

- (a) See (3.25).3.1.8.a.
- (b) See (3.25).3.1.8.b.
- (c) The organiser will establish a 10 minute period during which all fly-off competitors must wind their rubber motor and launch their model aircraft. Within these 10 minutes the competitor will have the right to a second attempt in the case of an unsuccessful attempt for an additional flight according to para 3.2.5. Starting positions will be decided by a draw for each fly-off.
- (d) See (3.25).3.1.8.d.
- (e) See (3.25).3.1.8.e.

### **3.2.9. Timing**

- (a) See Section 4b, para B.12.
- (b) The timing of flights is limited to the durations specified in 3.2.7. and 3.2.8.. The total flight time is taken from the launch of the model to the end of the flight.

### **3.2.10 Number of Helpers**

The competitor is entitled to have one helper at the starting pole position.

### **3.2.11 Launching**

- (a) Launching is by hand, the competitor being on the ground (jumping allowed).
- (b) Each competitor must wind his motor and launch the model himself.
- (c) The model aircraft must be launched within approximately 5 m from the starting pole position .
- (d) Additional heat may not be applied to the motor.

### 3.27.3.3 Class F1C - Models With Piston Motors - Full FAI Rules

#### 3.3.1 Definition

Model aircraft in which the energy is provided by a piston type motor and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight, except for changes of camber or incidence. Models with variable geometry or area must comply with the specifications when the surfaces are in minimum and maximum extended mode.

#### 3.3.2 Characteristics of Model Aircraft with Piston Motor(s) F1C

Maximum swept volume of motor(s) ..... 2.5 cm<sup>3</sup>

No exhaust extensions whatsoever are allowed to the exhaust opening(s) of the motor

Minimum total weight ..... 300 g/cm<sup>3</sup> swept volume of motor(s)

Minimum loading ..... 20 g/dm<sup>2</sup>

Maximum duration of motor run:..... 5 seconds from release of model.

Rule B.3.1. of Section 4b does not apply to class F1C.

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.

Note: Fuel for compression ignition motors is not restricted.

Before each attempt for an official flight the fuel tank must be washed out with standard formula fuel.

F1C models may use radio control only for irreversible actions to restrict the flight, that is motor stop or dethermalisation. Any malfunction or unintended operation of these functions is entirely at the risk of the competitor.

#### 3.3.3 Number of Flights

See (3.25).3.1.3.

#### 3.3.4 Definition of an Official Flight

- (a) The duration achieved on the first attempt unless this attempt is unsuccessful under the definition of 3.3.5. If the attempt is unsuccessful under the definition of 3.3.5c and a second attempt is not made then the duration of this first attempt is recorded as the official flight time.
- (b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definition of 3.3.5a or 3.3.5b., then a zero time is recorded for the flight.

#### 3.3.5 Definition of an Unsuccessful Attempt

An attempt is classed as unsuccessful if the model aircraft 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) the time of the motor run from the release of the model aircraft exceeds the time specified in 3.3.2. or 3.3.8 as appropriate for the flight.
- (b) when a part of the model becomes detached during the launch or during the flight.
- (c) the duration of the flight is less than 20 seconds.

### **3.3.6 Repeat of an Attempt**

An attempt may be repeated when the model aircraft collides with another model in flight, or a person other than the competitor himself while being launched. Should the model aircraft continue its flight in a normal manner, the competitor may demand that the flight be accepted as an official flight, even if the demand is made at the end of the attempt.

### **3.3.7 Duration of Flights**

The maximum duration to be taken for each flight in World and Continental Championships is to be four minutes for the first round and three minutes for subsequent rounds. In other international events a maximum of three minutes will be used for all rounds unless different durations (not exceeding five minutes) have been announced in advance in the contest bulletin for specific rounds.

In the event of model aircraft recovery problems or to suit meteorological conditions the Jury may permit the maximum for a round to be changed. Such a modified maximum must be announced before the start of the round.

Maximum durations greater than three minutes should only be used for rounds at times when wind and thermal activity are expected to be at a minimum.

### **3.3.8 Classification**

- (a) See (3.25).3.1.8.a.
- (b) See (3.25).3.1.8.b.
- (c) Starting positions will be decided by a draw for each fly-off. The organiser will establish a 10 minute period during which all fly-off competitors must start their engines and launch their model. Within these 10 minutes the competitor will have the right to a second attempt in the case of an unsuccessful attempt for an additional flight according to para 3.3.5.
- (d) See (3.25).3.1.8.d.
- (e) See (3.25).3.1.8.e. The maximum duration of the motor run is 5 seconds.

### **3.3.9 Timing**

- (a) See Section 4b, para B.12.
- (b) The timing of flights is limited to the durations specified in 3.3.7. and 3.3.8. The total flight time is taken from the launch of the model aircraft to the end of the flight.
- (c) The motor run must be timed by two timekeepers with quartz controlled electronic stopwatches with digital readout, recording to at least 1/100 of a second. The motor run is determined as the average of the two registered times, and this average is reduced to the nearest 1/10<sup>th</sup> of a second below.

### **3.3.10 Number of Helpers**

The competitor is entitled to have one helper at the starting pole position.

### **3.3.11 Launching**

- (a) Launching is by hand, the competitor being on the ground (jumping allowed).
- (b) Each competitor must start and regulate the motor or motors and launch the model himself.

- (c) The model must be launched within approximately 5 m from the starting pole position.

### 3.3.12 Noise

The noise level at the perimeter of the field where F1C is being flown shall be no more than 6 dB(A) above the ambient noise level at all parts of the field boundary where there is a noise sensitivity. If the perimeter noise level exceeds this limit, the launch line shall be moved away from the field boundary to a point where the level is in compliance with the limit.

## 3.28.3.5. Class F1E – Gliders with Automatic Steering (Slope Soaring Gliders) - Full FAI Rules

### 3.5.1 Definition

Model aircraft not provided with a propulsion device and in which lift is generated by aerodynamic forces acting on surfaces that remain fixed in flight, except for changes of camber or incidence. The glider can be equipped with a steering device, which cannot be controlled by the competitor during flight.

### 3.5.2 Characteristics of Gliders with Automatic Steering F1E

Maximum surface area (St) .....	150 dm <sup>2</sup>
Maximum loading .....	100 g/dm <sup>2</sup>
Maximum flying weight .....	5 kg

Rule B.3.1. of Section 4b does not apply to class F1E.

F1E models may use radio control only for an irreversible action to restrict the flight, that is dethermalisation. Any malfunction or unintended operation of this function is entirely at the risk of the competitor.

### 3.5.3 Number of Flights

The competition shall consist of five official flights, and shall be divided into five rounds in each of which one official flight may be recorded. The starting time, length and closing time for each round must be announced by the organisers prior to the start of the round and displayed throughout the round.

### **3.5.4 Definition of an Official Flight**

- (a) The duration achieved on the first attempt unless this attempt is unsuccessful under the definition of 3.5.5. If the attempt is unsuccessful under the definition of 3.5.5b and a second attempt is not made then the duration of this first attempt is recorded as the official flight time.
- (b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definition of 3.5.5a. then a zero time is recorded for the flight.

### **3.5.5 Definition of an Unsuccessful Attempt**

An attempt is classed as unsuccessful if the glider 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) When a part of the glider becomes detached during the launch or during the flight time.
- (b) The flight duration is less than 20 seconds.

### **3.5.6 Repeat of an Attempt**

An attempt may be repeated when the glider collides with another glider in flight, or a person other than the competitor himself while being launched. Should the glider continue its flight in a normal manner, the competitor may demand that the flight be accepted as an official flight, even if the demand is made at the end of the attempt.

### **3.5.7 Duration of Flights**

The maximum duration for each flight shall be decided by the Contest Director and shall be between two minutes and five minutes inclusive. This maximum time shall be announced prior to the start of each round and clearly displayed throughout the round.

### **3.5.8 Classification**

- (a) In each round, the time in seconds recorded by each competitor shall be expressed as a percentage of either (i) the declared maximum time, or (ii) if no maximum time is recorded by any competitor, the highest flight time achieved in that round. This percentage is entered as the competitor's score for the round. The percentage scores should be displayed on the scoreboard rounded down to 2 decimal places. All scores from the five rounds will decide the final classification. In open internationals (not championships) a general classification is produced for all junior and senior competitors. The junior classification is made using the scores obtained by the juniors in the general classification.
- (b) In the event of a tie, individual placings are to be decided by additional flights made immediately after the last flight of the contest has been made. The Contest Director shall decide an appropriate maximum time for each additional round required and the above percentage scoring system is applied. Scores resulting from such additional flights are not included to decide team classification.
- (c) The Contest Director will establish a 10-minute period during which all fly-off competitors must release their gliders.

### **3.5.9 Timing**

- (a) See Section 4b, para B.12.
- (b) The timing of flights is limited to the duration specified by the Contest Director under 3.5.7. The total flight time is taken from the launch of the glider to the end of the flight. Timekeepers must ensure that both they and the competitor are aware of the decided maximum time for the round in progress.

### **3.5.10 Number of Helpers**

The competitor is entitled to have one helper.

### **3.5.11 Launching**

- (a) Launching is by hand, the competitor standing on the ground.
- (b) Each competitor must adjust and launch the glider himself.

#### **NOTE**

In the FAI Sporting Code, Part ABR, B.8. Special Contest Organisation Requirements, B.9. FREE FLIGHT states;

In Free Flight contests for class F1E, (the organiser must) provide a starting line facing the wind with, on both ends, one perpendicular parallel line following the slope. The timekeepers have to remain behind the starting line whereas the competitor can launch his model in any position on the slope between the parallel lines and below the starting line.

## **3.29 FAI Class F1G Coupe d'Hiver - Full FAI Provisional Rules**

These rules for Class F1G are to be used in conjunction with the relevant paragraphs of Section 4b and 4c part 1.

### **3.29.G.1 Definition**

A model aircraft which is powered by an extensible motor and in which lift is generated by the aerodynamic forces acting on surfaces remaining fixed in flight, except for changes of camber or incidence.

### **3.G.2 Characteristics of Model Aircraft with Extensible Motor F1G**

Minimum weight of model aircraft less motor(s) ..... 70 g

Maximum weight of motor (s) lubricated..... 10 g

The number of models eligible for entry by each competitor is three.

### **3.G.3 Number of Flights**

- (a) Each competitor is entitled to five official flights.
- (b) Each competitor is entitled to one official flight in each round of the event. The duration of rounds must be announced in advance and may not be less than 30 minutes or greater than 90 minutes.

### **3.G.4 Definition of an Official Flight**

- (a) The duration achieved on the first attempt unless this attempt is unsuccessful under the definition of 3.G.5. (if the attempt is unsuccessful for reason 3.G.5.a and a second attempt is not made then the duration of the first flight attempt is recorded as the official flight time).
- (b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definition of 3.G.5.b., then a zero time is recorded for the flight.

### **3.G.5 Definition of an Unsuccessful Attempt**

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) the flight duration is less than 20 seconds,
- (b) when a part of the model becomes detached during the launch or during the time of flight.

### **3.G.6 Repeat of an Attempt**

An attempt may be repeated when the model collides with another model in flight or a person other than the competitor himself, while being launched. Should the model continue its flight in a normal manner, the competitor may demand that the flight be accepted as an official flight, even if the demand be made at the end of the attempt.

### **3.G.7 Duration of Flights**

The maximum duration to be taken for each official flight is to be two minutes. In the event of exceptional meteorological conditions or model recovery problems, the Jury may permit the maximum for a round to be changed. Such a modified maximum must be announced before the start of the round.

### **3.G.8 Classification**

- (a) The total time of the five flights is taken for the final classification.
- (b) In order to decide the winner when there is a tie, additional deciding flights shall be made immediately after the last flight of the event has been completed. The maximum time of flight in each additional round shall be increased by one minute over the maximum time of flight in the previous round.

The organiser will establish a 10 minute period during which all fly-off competitors must wind their rubber motors and launch their model. Within these 10 minutes, the competitor will have the right to a second attempt in the case of an unsuccessful attempt for an additional flight according to para 3.G.5.

### **3.G.9 Timing**

- (a) See Section 4b, para B.12.
- (b) The total time of flight is taken from the launch of the model to the end of the flight.

### **3.G.10 Number of Helpers**

The competitor is entitled to have one helper at the starting position.

### **3.G.11 Launching**

- (a) Launching is by hand, the competitor being on the ground (jumping allowed).
- (b) Each competitor must wind his motor and launch the model himself.
- (c) The model must be launched within approximately 5 metres from the starting pole position.
- (d) Additional heat must not be applied to the motor.

## **3.30 FAI Class F1H A/1 Glider - Full FAI Provisional Rules**

The rules for Class F1H are to be used in conjunction with the relevant paragraphs of Section 4b and 4c part 1.

### **3.H.1 Definition**

A model aircraft which is not provided with a propulsion device and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight, except for changes in camber or incidence. Models with variable geometry or area must comply with the specification when the surfaces are in minimum and maximum extended mode.

### **3.H.2 Characteristics of Gliders F1H**

Maximum Surface area (St)..... 18 dm<sup>2</sup>

Minimum weight ..... 220 g

Maximum length of launch cable when loaded by 2 kg ..... 50 m

The number of gliders eligible for entry by each competitor is three.

### **3.H.3 Number of Flights**

- (a) Each competitor is entitled to five official flights.
- (b) Each competitor is entitled to one official flight in each round of the event. The duration of rounds must be announced in advance and may not be less than 30 minutes or greater than 90 minutes.

### **3.H.4 Definition of an Official Flight**

- (a) The duration achieved on the first attempt unless this attempt is unsuccessful under the definition of 3.H.5 (if the attempt is unsuccessful for reason 3.H.5.a and a second attempt is not made then the duration of the first flight attempt is recorded as the official flight time).
- (b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definitions of 3.H.5.b, 3.H.5.c, or 3.H.5.d then a zero time is recorded for the flight.

### **3.H.5 Definition of an Unsuccessful Attempt**

An attempt is classed as unsuccessful if the glider 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) The flight duration is less than 20 seconds.
- (b) The glider returns to the ground without release of the cable.
- (c) The moment of release of the cable cannot properly be established by the timekeepers.
- (d) A part of the glider becomes detached during the launch or during the flight time.
- (e) It is apparent to the timekeeper that the competitor has lost contact with the cable and the competitor chooses to declare an attempt.

### **3.H.6 Repeat of an Attempt**

An attempt may be repeated when:

- (a) the glider collides with a person other than the person who launched it, while being launched;
- (b) during towing, the glider collides with a model in free flight (but not with a model being towed or with a towline) and towing cannot continue normally.;
- (c) during the flight the glider collides with another model or a towline other than its own towline. Should the glider continue its flight in the normal manner, the competitor may demand the flight be accepted as an official flight, even if the demand is made at the end of the attempt.

### **3.H.7 Duration of Flights**

The maximum duration to be taken for each official flight is to be two minutes. In the event of exceptional meteorological conditions or glider recovery problems, the Jury may permit the maximum for a round to be changed. Such a modified maximum must be announced before the start of the round.

### **3.H.8 Classification**

- (a) The total time of the five flights is taken for the final classification.
- (b) In order to decide the individual placings when there is a tie, additional deciding flights shall be made immediately after the last flight of the event has been completed. The maximum time of flight in each additional round shall be increased by one minute on the maximum time of flight in the previous round.

The organiser will establish a 10 minute period during which all fly-off competitors must tow and release their glider. Within these 10 minutes, the competitor will have the right to a second attempt in the case of an unsuccessful attempt for an additional flight according to para 3.H.5.

### **3.H.9 Timing**

- (a) See Section 4b, para B.12.
- (b) The total time of flight is taken from the release of the glider from the launching cable to the end of the flight.

### **3.H.10 Number of Helpers**

The competitor is entitled to have one helper at the starting position.

### **3.H.11 Launching Devices**

- (a) The glider must be launched by means of a single cable; its length including release equipment and the launching device shall not exceed 50 metres when subjected to a tensile load of 2 kg. Metal cables are prohibited.
- (b) Any devices attached to the launching cable must not be thrown by the competitor, under penalty of cancellation of the flight. The competitor may release the launching cable and a lightweight marker, such as a ring, pennant or small rubber ball, at its end.
- (c) To facilitate observation and timing, the cable must be equipped with a pennant, having rectangular shape of a minimum area of 2.5 dm<sup>2</sup> and the smallest side of at least 5cm, attached directly to the main cable.
- (d) All types of auxiliary stabilising devices on the cable are forbidden.

### **3.H.12 Organisation of Launching**

- (a) The competitor must be on the ground and must operate the launching devices himself.
- (b) All freedom of action and movement is permitted to allow the best use of the cable, except the throwing of the launching device.
- (c) The glider must be launched within approximately 5 metres from the starting pole position.

### **3.31 FAI Class F1J - Full FAI Provisional Rules**

The rules for Class F1J are to be used in conjunction with the relevant paragraphs of Section 4b and 4c part 1.

#### **3.J.1 Definition**

A model aircraft in which the energy is provided by a piston type motor and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight, except for changes in camber or incidence.

#### **3.J.2 Characteristics of Model Aircraft with Piston Type Motors F1J**

Maximum swept volume of motor(s)..... 1.00 cm<sup>3</sup>

No extensions whatsoever are allowed to the exhaust opening(s) of the motor(s).

Minimum total weight ..... 160 g

Maximum duration of motor run..... 5 seconds from release of model.

Fuel constituents are not restricted.

The number of models eligible for entry by each competitor is three.

#### **3.J.3 Number of Flights**

- (a) Each competitor is entitled to five official flights.
- (b) Each competitor is entitled to one official flight in each round of the event. The duration of the rounds must be announced in advance and may not be less than 30 minutes or greater than 90 minutes.

#### **3.J.4 Definition of an Official Flight**

- (a) The duration achieved on the first attempt unless this attempt is unsuccessful under the definition of 3.J.5. (If the attempt is unsuccessful for reason 3.J.5.a) and a second attempt is not made then the duration of the first flight attempt is recorded as the official flight time.)
- (b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definition of 3.J.5.b or 3.J.5.c, then a zero time is recorded for the flight.

#### **3.J.5 Definition of an Unsuccessful Attempt**

An attempt is classed as unsuccessful if the model aircraft 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) The flight duration is less than 20 seconds.
- (b) The motor run exceeds 7 seconds from the release of the model.
- (c) A part of the model becomes detached during the launch or during the flight time.

#### **3.J.6 Repeat of an Attempt**

An attempt may be repeated when the model aircraft collides with another model in flight or a person, other than the competitor himself, while being launched. Should the model continue its flight in a normal manner, the competitor may demand that the flight be accepted as an official flight, even if the demand is made at the end of the attempt.

### **3.J.7 Duration of Flights**

The maximum duration to be taken for each official flight is to be two minutes. In the event of exceptional meteorological conditions or model recovery problems, the Jury may permit the maximum for a round to be changed. Such a modified maximum must be announced before the start of the round.

### **3.J.8 Classification**

- (a) The total time of the five flights is taken for the final classification.
- (b) In order to decide the individual placings when there is a tie, additional deciding flights shall be made immediately after the last flight of the event has been completed. The maximum time of flight in each additional round shall be increased by one minute on the maximum time of flight in the previous round.

The organiser will establish a 10 minute period during which all fly-off competitors must start their engines and launch their models. Within these 10 minutes, the competitor will have the right to a second attempt in the case of an unsuccessful attempt for an additional flight according to para 3.J.5.

### **3.J.9 Timing**

- (a) See Section 4b, para B.12.
- (b) The total time of flight is taken from the launch of the model to the end of the flight.
- (c) The motor run must be timed by two timekeepers with electronic stopwatches with digital readout recording at least 1/100 of a second. The motor run is determined as the average of the two registered times and the average is reduced to the nearest 1/10th of a second below.

### **3.J.10 Number of Helpers**

The competitor is entitled to have one helper at the starting position.

### **3.J.11 Launching**

- (a) Launching is by hand, the competitor being on the ground (jumping allowed).
- (b) Each competitor must start his motor and launch the model himself.
- (c) The model must be launched within approximately 5 metres from the starting pole position.

### 3.32 FAI Class F1K CO<sub>2</sub> - Full FAI Provisional Rules

The regulations for class F1K given below are to be used in conjunction with the relevant paragraphs of Section 4b and 4c part 1.

#### 3.K.1 Definition

A model aircraft which is powered by CO<sub>2</sub> gas engine and in which lift is generated by the aerodynamic forces acting on surfaces remaining fixed in flight, except for changes in camber or incidence.

#### 3.K.2 Characteristics

Minimum weight (without CO<sub>2</sub>) ..... 75 g

Maximum surface area (St) ..... 12 dm<sup>2</sup>

Maximum volume of the CO<sub>2</sub> tank(s) ..... 2 cm<sup>3</sup>

(connecting tubes count only if their outer diameter is over 2 mm).

The number of models eligible for entry by each competitor is three (3).

Rule B.3.1. of Section 4b does not apply to class F1K.

#### 3.K.3 Number of Flights

- (a) Each competitor is entitled to five official flights.
- (b) Each competitor is entitled to one official flight in each round of the event. The duration of rounds must be announced in advance and may not be less than 30 minutes or greater than 90 minutes.

#### 3.K.4 Definition of an Official Flight

- (a) The duration achieved on the first attempt unless this attempt is unsuccessful under the definition of 3.K.5. (If the attempt is unsuccessful under the definition of 3.K.5.a and a second attempt is not made, then the duration of this first attempt is recorded as the official flight time).
- (b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definition of any of 3.K.5.b., 3.K.5.c. or 3.K.5.d., then a zero time is recorded for the flight.

#### 3.K.5 Definition of an Unsuccessful Attempt

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) The flight duration is less than 20 seconds.
- (b) When a part of the model becomes detached during the launch or during the flight time.
- (c) If the motor stops during the waiting time in deciding flights (see 3.K.8.b.)
- (d) If, after the beginning of the waiting time (see 3.K.8.b) until the end of the official flight, the motor adjustment or thermal condition of the tank is changed or influenced by any physical intervention.

### **3.K.6 Repeat of an Attempt**

An attempt may be repeated when the model aircraft collides with another model in flight or a person (the competitor excluded) while being launched. Should the model continue its flight in a normal manner, the competitor may demand that the flight be accepted as an official flight, even if the demand is made at the end of the attempt.

### **3.K.7 Duration of Flight**

The maximum duration to be taken for each official flight is to be two minutes. In the event of exceptional meteorological conditions or model recovery problems the Jury may permit the maximum for a round to be reduced. Such a modified maximum must be announced before the start of the round.

### **3.K.8 Classification**

- (a) The total time of the five flights is taken for the final classification.
- (b) In order to decide the individual placings when there is a tie, additional flights shall be made after the last flight of the event has been completed. The maximum time of flight in each additional round remains two minutes.

In the first deciding round, the motor must be started, then the competitor must wait with running motor for 60 or 120 seconds (defined by the organiser prior to the round), until the timekeepers give a sign to launch the model. The timing of the flight begins when the model is launched. In each further additional flight, the waiting time shall be increased by 60 or 120 seconds (defined by the organiser prior to the round) over the waiting time of the previous round.

- (c) The organiser will establish a 15 minute period during which all fly-off competitors must start their motors and launch their models. Within these 15 minutes, the competitor will have the right to a second attempt in the case of an unsuccessful first attempt.

### **3.K.9 Timing**

- (a) See section 4b, para B.12.
- (b) The total time of flight is taken from the launch of the model to the end of the flight.

### **3.K.10 Number of Helpers**

The competitor is entitled to have one helper at the starting position.

### **3.K.11 Launching**

- (a) Launching is by hand, the competitor being on the ground (jumping allowed).
- (b) Each competitor must fill the tank, start his motor and launch the model aircraft himself.
- (c) The model must be launched within approximately 5 m from the starting pole position.

### **3.50 FAI Class F1P Power (Full FAI Provisional Rules)**

#### **3.P.1. Definition**

A model aircraft in which the energy is provided by a piston type motor and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight, except for changes in camber or incidence.

#### **3.P.2. Characteristics of Model Aircraft with Piston Type Motors**

Minimum projected wing surface area ..... 26 dm<sup>2</sup>

Maximum projected wing span..... 1.5m

Minimum total weight..... 250 g

Maximum duration of motor run..... 7 seconds from release of model.

Maximum swept volume of motor(s) ..... 1.00 cm<sup>3</sup>

Only one change may be made to the wing or tail incidence or camber during the flight before dethermalising.

No extensions whatsoever are allowed to the exhaust opening(s) of the motor(s).

The motor must drive the propeller directly, no gears allowed

Mechanical brakes are not allowed for stopping the motor.

Fuel constituents are not restricted.

The number of models eligible for entry by each competitor is four.

Rule B.3.1. of Section 4b does not apply to class F1P.

#### **3.P.3. Number of Flights**

(a) Each competitor is entitled to seven official flights.

(b) Each competitor is entitled to one official flight in each round of the event. The duration of the rounds must be announced in advance and may not be less than 30 minutes or greater than 90 minutes.

#### **3.P.4. Definition of an Official Flight**

(a) The duration achieved on the first attempt unless this attempt is unsuccessful under the definition of 3.P.5. (If the attempt is unsuccessful for reason 3.P.5.a) and a second attempt is not made then the duration of the first flight attempt is recorded as the official flight time.)

(b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definition of 3.P.5.b or 3.P.5.c, then a zero time is recorded for the flight.

#### **3.P.5. Definition of an Unsuccessful Attempt**

An attempt is classed as unsuccessful if the model aircraft 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) The flight duration is less than 20 seconds.

(b) The motor run exceeds 10 seconds from the release of the model.

(c) A part of the model becomes detached during the launch or during the flight time.

### **3.P.6 Repeat of an Attempt**

An attempt may be repeated when the model aircraft collides with another model in flight or a person, other than the competitor himself, while being launched. Should the model continue its flight in a normal manner, the competitor may demand that the flight be accepted as an official flight, even if the demand is made at the end of the attempt.

### **3.P.7. Duration of Flights**

The maximum duration to be taken for each official flight is to be three minutes. In the event of exceptional meteorological conditions or model recovery problems, the Jury may permit the maximum for a round to be changed. Such a modified maximum must be announced before the start of the round.

### **3.P.8 Classification**

- (a) The total time of the seven flights is taken for the final classification.
- (b) In order to decide the individual placings when there is a tie, additional deciding flights shall be made immediately after the last flight of the event has been completed. The maximum time of flight in each additional round shall be increased by one minute on the maximum time of flight in the previous round.

The organiser will establish a 10 minute period during which all fly-off competitors must start their engines and launch their models. Within these 10 minutes, the competitor will have the right to a second attempt in the case of an unsuccessful attempt for an additional flight according to para 3.P.5.

### **3.P.9. Timing**

- (a) See Section 4b, para B.12.
- (b) The total time of flight is taken from the launch of the model to the end of the flight.
- (c) The motor run must be timed by two timekeepers with electronic stopwatches with digital readout recording at least 1/100 of a second. The motor run is determined as the average of the two registered times and the average is reduced to the nearest 1/10th of a second below.

### **3.P.10. Number of Helpers**

The competitor is entitled to have one helper at the starting position.

### **3.P.11. Launching**

- (a) Launching is by hand, the competitor being on the ground (jumping allowed).
- (b) Each competitor must start his motor and launch the model himself.
- (c) The model must be launched within approximately 5 metres from the starting pole position.

## **3.51. FAI Class F1Q Electric Power Model Aircraft (Full FAI Provisional Rules)**

### **3.Q.1. Definition**

Model aircraft which is powered by (an) electric motor(s) and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight, except for changes of camber or incidence.

### **3.Q.2. Characteristics**

Nickel Cadmium (NiCad), Nickel Metal Hydrate (NiMH) and Lithium (Li) batteries can be used. Batteries should be wrapped in a transparent covering to allow their classification. The battery pack will power the motor(s) as well as the controller(s) if they are used.

Maximum weight of battery pack (including connectors on the battery):

NiCd or NiMH batteries .....	125g
Li batteries.....	90g

External Battery packs are required to have a safety tether to the fuselage.

Safety locks must be used to prevent unintentional restarting of motor(s) after motor(s) have been stopped.

Rule B.3.1. of Section 4b does not apply to class (No builder of the model requirement. )

Maximum duration of motor run:

time to be specified by the organisers up to a maximum duration of 25 seconds from release of the model

Motor runs may be timed statically on the ground by timing the motor cut-off. The motor run will also be timed from the instant of launch until it becomes apparent from the model attitude that the motor has stopped. If the motor run cannot be determined by observation of the model in flight then the static ground run time is taken, if that had been demonstrated.

F1Q models may use radio control only for irreversible actions to restrict the flight, that is motor stop and/or dethermalisation. Any malfunction or unintended operation of these functions is entirely at the risk of the competitor.

### **3.Q.3. Number of Flights**

7.

### **3.Q.4. Definition of an Official Flight**

(a) The duration achieved on the first attempt unless this attempt is unsuccessful under the definition of 3.Q.5. If the attempt is unsuccessful under the definition of 3.Q.5.c and a second attempt is not made then the duration of this first attempt is recorded as the official flight time.

(b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definition of 3.Q.5.a or 3.Q.5.b, then a zero time is recorded for the flight.

### **3.Q.5. Definition of an Unsuccessful Attempt**

An attempt is classed as unsuccessful if the model aircraft 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) the time of the motor run from the release of the model aircraft exceeds the time specified in 3.Q.2 or 3.Q.8.
- (b) when a part of the model becomes detached during the launch or during the flight.
- (c) the duration of the flight is less than 20 seconds.

### **3.Q.6. Repeat of an Attempt**

An attempt may be repeated when the model aircraft collides with another model in flight, or a person other than the competitor himself while being launched. Should the model aircraft continue its flight in a normal manner, the competitor may demand that the flight be accepted as an official flight, even if the demand is made at the end of the attempt.

### **3.Q.7. Duration of Flights**

The maximum duration for each flight is specified by the organiser up to a duration of three minutes.

In the event of exceptional meteorological conditions or model aircraft recovery problems the Jury may permit the maximum for a round to be changed. Such a modified maximum must be announced before the start of the round.

### **3.Q.8. Classification**

- (a) The total time for each competitor for each of the official flights defined in 3.Q.3 is taken for the final classification.
- (b) In order to decide the individual placings when there is a tie, additional flights shall be made after the last flight of the event has been completed. The motor run allowed for the first of the deciding flights shall be 5 seconds shorter than that used in the rounds. The motor run will be reduced further by 5 seconds for each subsequent flight, subject to a minimum run of 5 seconds. The maximum time for the deciding flights will remain at that defined in 3.Q.7.
- (c) The organiser will establish a 10 minute period during which all fly-off competitors must launch their model. Within these 10 minutes the competitors will have the right to a second attempt in the case of an unsuccessful first attempt for an additional flight according to 3.Q.5. Starting positions will be decided by draw for each fly-off.
- (d) The Jury may permit the maximum for a round to be changed and/or the motor run to be changed from that given under 3.Q.8.b according to conditions.
- (e) The motor run and maximum must be announced before the start of the round.

### **3.Q.9. Timing**

- (a) See Section 4b, para B.12.
- (b) The timing of flights is limited to the durations specified in 3.Q.7 and 3.Q.8. The total flight time is taken from the launch of the model aircraft to the end of the flight.
- (c) The motor run must be timed by two timekeepers with quartz controlled electronic stopwatches with digital readout, recording to at least 1/100 of a second. The

motor run is determined as the average of the two registered times, and this average is reduced to the nearest 1/10th of a second below.

**3.Q.10. Number of Helpers**

The competitor is entitled to have one helper at the starting pole position.

**3.Q.11. Launching**

- (a) Launching is by hand, the competitor being on the ground (jumping allowed).
- (b) Each competitor must start and regulate the motor or motors and launch the model himself.
- (c) The model must be launched within approximately 5 m from the starting pole position.

# FREE FLIGHT WORLD CUP - Full FAI Provisional Rules

## 1. Classes

The following separate classes are recognised for World Cup competition: F1A, F1B, F1C, F1E, F1Q, F1A Junior, F1B Junior, F1P Junior and F1E Junior. In F1C events, F1P models may be flown to the F1P class rules alongside the F1C models and be included in the F1C World Cup (and also for F1P Junior for junior fliers).

## 2. Competitors

All competitors in the specified open international contests are eligible for the World Cup. Only Junior competitors are eligible for the F1A Junior and F1E Junior World Cup.

## 3. Contests

Contests included in the World Cup must appear on the FAI contest calendar and be run according to the FAI Sporting Code. The contests to be counted for a World Cup in one year are to be nominated at the CIAM Bureau meeting at the end of the preceding year and are to be indicated on the FAI contest calendar. A maximum of two contests may be selected for any one country. A country may choose to fly a World Cup event at a flying site in another country. For the purpose of counting events and classification (paragraph 5) this event will be regarded as an event by the organising country, provided that the name of this country is included in the title of the event and the organiser contact address, telephone and fax numbers are in the organising country.

## 4. Points Allocation

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:

Place	1	2	3	4	5	6	7	8	9	10	11	12
Points	50	40	30	25	20	19	18	17	16	15	14	13
Place	13	14	15	16	17	18	19	20	21	22	23	24
Points	12	11	10	9	8	7	6	5	4	3	2	1

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 20 people beaten in F1A, 1 point per 10 people beaten in F1B or F1E, 1 point per 5 people in F1C, F1A Junior, F1B Junior, F1P Junior and F1E Junior. The number of bonus points is rounded down to the nearest whole number. The number of people beaten by someone in place P is (NP) with N the number of competitors defined in b) below.

- Points are awarded only to competitors completing at least one flight in the contest.
- 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, 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).

- (c) In the event of a tie for any placing, the competitors with that placing will share the points which would have been awarded to the places covered had the tie been resolved (round up the score to the nearest whole number of points).
- (d) For F1A Junior, F1B Junior, F1P Junior and F1E Junior points are awarded according to Junior classification.

## **5. Classification**

The World Cup results are determined by considering the total number of points obtained by each competitor in the World Cup events. Each competitor may count the result of all competitions, except that only one competition may be counted from each country in Europe (taking the better score for any European country in which he has scored in two competitions). To determine the total score, up to three events may be counted, selecting each competitor's best results during the year.

In the event of a tie the winner will be determined according to the following scheme. The number of events counted will be increased from three, one at a time, until the winner is obtained. If this does not separate the tied competitors then the winner will be determined by considering the points obtained in the best three events multiplied by the number of competitors flying in each event. The winner is the one with the greatest total thus calculated.

## **6. Awards**

The winner earns the title of Winner of the World Cup. Certificates, medals and trophies may be awarded by the Subcommittee as available.

## **7. Organisation**

The Subcommittee shall be responsible for organising the World Cup and may nominate a responsible person or special subcommittee to administer the event.

## **8. Communications**

The Free Flight Subcommittee should receive the results from each contest in the World Cup and then calculate and publish the current World Cup positions. These should be distributed to the news agencies and should also be available by payment of a subscription to any interested bodies or individuals. Latest results will also be sent to the organiser of each competition in the World Cup for display at the competition. Final results of the World Cup are to be sent also to the FAI, National Airports Controls and the Aeromodelling press.

## **9. Responsibilities of Competition Organisers**

Competition organisers must propose their event for inclusion in the World Cup when nominating events for the FAI International Sporting Calendar. The final selection of events from these proposals is made by the CIAM Bureau as defined in paragraph 3.

Immediately after the event, the competition organiser must send the results to the World Cup organiser, at least within one month as required in the Sporting Code B.5.4. Any failure to return results promptly will be reviewed by the CIAM Bureau when considering the competition calendar for the following year.

**10.****Jury**

A Jury of three responsible people shall be nominated by the CIAM Free Flight Sub-committee to rule on any protest concerning the World Cup during a year. Any protest must be submitted in writing to the Free Flight Sub-committee Chairman and must be accompanied by a fee equivalent to 35 Euros. In the event of the Jury upholding the protest, the fee will be returned.

# INDOOR RULES

## 3.20 Indoor General Rules

### 3.20.1 Index Competitions

Index competitions allow different classes of model to compete against each other directly. A challenging and satisfying contest can be held which would not be possible for individual classes.

#### 3.20.1.1 Types of Index Competitions

- (a) Microfilm index. Models eligible for this category are F1D, 35 cm or Open Microfilm as defined in 3.21, 3.23.2 and 3.23.3.
- (b) All-in index. All types of indoor model as defined in 3.21, 3.22, 3.23.1 to 3.23.8 shall be eligible.

#### 3.20.1.2 Index Competition Scoring

Each official flight time shall be recorded and the score for that flight expressed as a percentage of the target time (see 3.20.4) for that class of model. The best score from six official flights shall determine the placing in the contest. In the event of a tie, the next best score shall determine the placing, this procedure being repeated as often as necessary.

#### 3.20.1.3 Index Competition Target Times

The target time shall be the highest time determined from:

- (a) The UK national record for that ceiling category.
- (b) The flight time from a previous recognised index competition at the same site.
- (c) A target time defined by the Indoor Technical Committee if existing scores under (a) or (b) give an unrealistically low target time.

A complete list of target times shall be posted at the start of each competition.

### 3.20.2 Proxy Flying and Helpers

- (a) Steering  
See 3.21.3.4, Class F1D Indoor Models - Full FAI Rules,  
Rules 3.21.3.4.(a), (b), (c), (d) and (e).
- (b) Number of Helpers  
The competitor is entitled to have one helper.
- (c) Launching and Winding
  - (a) Launching is by hand, the competitor standing on the ground.
  - (b) Winding of rubber motors may be done by either the competitor or his helper.

### 3.20.3 Protests and Appeals

- (a) Any competitor wishing to register a protest must do so at the event to the Contest Director (CD).

- (b) If not satisfied with the CD's decision the competitor must, at the event, hand him the protest in writing together with a fee of double the standard entry fee. The CD will then immediately empanel a jury of three persons to deal with the protest
- (c) The jury's decision is final, subject to the right of the competitor to appeal to the BMFA Council.
- (d) Notification that an appeal is pending must be sent by the competitor to the BMFA Competition Secretary to arrive not later than 2 weeks from the date of the event.
- (e) The appeal itself, together with any supporting evidence, must be sent to the BMFA Competition Secretary to arrive not later than two months from the date of the event.
- (f) If the written protest or appeal is upheld, the protest fee will be returned.

### 3.21.3.4 Class F1D Indoor Models - Full FAI Rules

#### 3.4.1. Definition

Model aircraft which can only be flown in an enclosed space and which are powered by extensible motors and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight, except for changes of camber or incidence.

#### 3.4.2. Characteristics of Indoor Model Aircraft F1D

Maximum wingspan of the monoplane model aircraft .....550 mm  
Maximum chord of the lifting surfaces .....200 mm  
Maximum tail span .....450 mm  
Minimum weight without rubber motor..... 1.2 g  
Maximum weight of the lubricated rubber motor ..... 0.6 g

#### 3.4.3. Number of Flights

The competitor shall be allowed 6 flights of which the best 2 flights will be taken for classification. If the organisers specify rounds for the competition then the competitor is entitled to one official flight in each round. The duration of rounds must be announced in advance.

#### 3.4.4. Definition of an Official Flight

Only flights of 60 seconds or more will be considered as official. A flight may be terminated by any physical means within the first 60 seconds. A flight of less than 60 seconds duration will be considered an attempt and there will be one attempt flight allowed for each of the six official flights; the attempts will not be accumulative.

#### 3.4.5. Number of Model Aircraft

There is no limit to the number of model aircraft that a competitor may use at an indoor contest.

#### 3.4.6. Collision Rule

In the event of a collision between two model aircraft in flight, each competitor must choose, in the time span between the collision and two minutes following the termination of his flight, either to retain the time of flight as an official time, or to have a reflight. The reflight must be flown before his next official flight.

#### 3.4.7. Steering

- (a) A balloon(s) with its line attached, or a rod, may be used to alter the course of the model aircraft, or to reposition it in another part of the flying space. There will be no time limit or restriction to the number of steering attempts, except that all steering shall be done from the front end of the model and never from behind.
- (b) Steering must only be used to avert collision with the structure of the building, its contents or other models. Movements of the model must be primarily in a horizontal plane.

**Note:** If, in a timekeeper's opinion, a model aircraft's altitude change is approaching one half metre, or one metre for each 25 m of altitude (whichever is larger) he will warn the competitor. Continued disregard of the timekeeper's warning will result in a terminated flight.

- (c) During steering the propeller may get caught by the line/balloon(s)/rod and stop revolving. As soon as the propeller stops, a third watch should be used (preferably a double button watch, that records accumulative time) to determine the total of propeller stopped time, which is deducted from the running total time shown on the other two watches. If the steerer cannot disengage the propeller after steering, all three watches are to be stopped together, and the total prop-stopped time deducted as is detailed above.
- (d) No reflight is allowed other than if fouled by another model during steering.
- (e) The decision to steer is the responsibility of the competitor and must be done by him. A physically handicapped competitor must arrange for a substitute with the contest officials. In the case of poor sight, a medical doctor's affidavit certifying that the competitor's vision is inadequate can be submitted under the following conditions:
  - (i) The better eye's vision is no less than 6/12 (metres).
  - or
  - (ii) The results of a binocular vision test show that the competitor's binocular vision is either medium or non-existent.

Submission of this affidavit to the contest organiser or event director will permit the competitor to appoint a substitute steerer.
- (f) It is the timekeeper's responsibility to observe the use of the steering equipment, and to warn the competitor if he is likely to endanger other model aircraft. If other models are fouled by the steerer, the fouled competitor has the choice of a reflight, which, if taken, is his score for that round. He must exercise his choice to the timekeepers no later than two minutes after termination of his flight. If he chooses to restart, he must do so before his next official flight.

#### 3.4.8. Classification

The total of two best flights of each competitor shall be taken for final classification. In the case of a tie the third best flight decides and so on in the case of a further tie.

#### 3.4.9. Timing of Flights

The flights must be timed by two timekeepers with electronic stopwatches with digital readout recording at least 1/100 of a second.

From Section 4b. para B.12., only B.12.1., B.12.2., and B.12.6. apply to class F1D.

The timing of each flight shall commence when the model aircraft is released. Timing will terminate when:

- (a) the model touches the floor of the building.
- (b) jettisoning occurs.
- (c) the model aircraft comes into contact with any part of the building or its contents other than the floor and translational movement ceases.

**Note:** In this case, the timekeepers shall continue to time the flight for ten seconds after translational movement has ceased. Should the model remain in contact with the building or its contents after 10 seconds, timing will cease and the 10 seconds will be subtracted from the flight time. Should the aircraft release itself from contact with the building in less than 10 seconds, timing will continue normally.

### **3.4.10. Number of Helpers**

The competitor is entitled to have one helper.

### **3.4.11. Launching**

- (a) Launching is by hand, the competitor standing on the ground.
- (b) Winding of rubber motors must be done by the competitor himself.

### **3.4.12. Ceiling Height Categories**

The following ceiling height categories are recognised for contests and records:

- I. - less than 8 metres.
- II. - between 8 and 15 metres.
- III. - between 15 and 30 metres.
- IV. - higher than 30 metres.

The height of the ceiling is defined as the vertical distance from the floor to the highest point at which a circle of 15 metres diameter can be inscribed, below the primary structure of the building.

## **3.22 Easy B**

**3.22.1** All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. or where otherwise specified.

### **3.22.2 Specification of Model**

- (a) Wing maximum projected span 18", maximum chord 3" monoplane only.
- (b) Tail area 30 in<sup>2</sup> maximum, wing and tail to have straight line outlines.
- (c) Propeller maximum diameter 14", no variable pitch or flaring mechanisms; spar to be at 50% +/- 10% all the way along the blade. Solid wood construction only.
- (d) Motor stick and tail boom to be solid construction only.
- (e) Minimum weight without rubber 1.2 g.
- (f) Wood bracing may be used.
- (g) Any covering material allowed.

### **3.23.1 Manhattan Cabin**

- (a) All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. or where otherwise specified.
- (b) An indoor duration model. Overall model length (maximum) without propeller 20". Fuselage must be able to contain an imaginary box 2" x 2.5" x 4" within its maximum interior cross section at any one vertical station. The fuselage must have a clear plastic windscreen of at least 2 in<sup>2</sup> area. Motor sticks and diamond fuselages are not allowed. The rubber motor must be enclosed and supported by the fuselage.
- (c) The propeller must be a fixed pitch all balsa type.
- (d) All models must ROG, Landing and take off gear must be a fixed and rigid 2 wheel assembly, capable of fully supporting the model with the motor inside. Minimum wheel diameter 1".
- (e) An unbraced monoplane wing is required, mounted directly on the fuselage (no pylons or wing posts), maximum size 20" x 4" flat (not projected).
- (f) Stabiliser dimensions must not exceed 12" x 3.5" flat.
- (g) Tissue or condenser paper covering is allowed, but plastic films are not.
- (h) Minimum weight without rubber is 6 grams.
- (i) The rudder may not extend beyond the rear of the stabiliser.
- (j) A 4 g model, as flown in the USA and other countries may also be flown. The specification is as above except that the wing may be mounted on posts or a pylon and that the minimum weight without rubber is 4 g. When flown in the same contest as 6 g models, the flight times of the latter shall be factored up by 10/7 to determine the competition score and placing in the contest.

### **3.23.2 35 cm Microfilm**

All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. or where otherwise specified.

Wing span to be 350 mm maximum.

### **3.23.3 Open Microfilm**

All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2.

There are no other restrictions.

### **3.23.4 'Hard' B**

**3.23.4.1** All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. or where otherwise specified.

**3.23.4.2** Maximum wing span will be 18", maximum wing chord will be 3".

Any shape within these restrictions is allowed.

Any form of bracing and propeller construction is permitted.

Any covering other than microfilm is allowed.

### **3.23.5 Pennyplane**

(a) All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. or where otherwise specified.

(b) Minimum weight 0.109 oz (3.09 g) (equal to that of a new US copper penny) without rubber.

(c) Overall length excluding propeller 18".

(d) Projected wing span perpendicular to motor stick 18".

(e) Distance from front of thrust bearing to rear rubber hook not to exceed 10".

(f) A single direct drive motor shall power a single propeller. The rubber motor may not be enclosed.

### **3.23.5.1 Novice Pennyplane**

The rules for Pennyplane (3.23.5) shall apply except that:

(a) Wing chord shall not exceed 5", monoplane only.

(b) Tail dimensions not to exceed 12" x 4".

(c) Solid motor stick and boom.

(d) Maximum propeller diameter 12". No variable pitch or incidence changing gadgets.

### **3.23.6 Indoor Hand Launched Glider**

(a) An indoor hand launched glider is a model aircraft which is flown in an enclosed space from a hand launch with the aim of achieving maximum flight duration.

(b) The flyer must be the constructor of the model.

(c) A model shall have a loading of at least 0.5 g / dm<sup>2</sup> (0.164 oz / ft<sup>2</sup>), based on total surface area (projected).

(d) An entrant may use up to three models or parts thereof in a contest.

- (e) In a contest, an entrant may make up to ten official flights. The sum of the two highest flight times will be used as the entrant's score.
- (f) In the event of a tie the next flight time below those already considered shall be added to the score. If this does not resolve the tie even, after all ten flights have been considered, further single flights shall be made and added to the entrant's scores until the scores differ.
- (g) Models may be launched in any manner that does not employ any equipment or mechanical aids.
- (h) Models shall be launched from the floor. A leap or jump may be made at the moment of launch
- (i) The timing of a flight shall start from the moment of launch, when contact between the flyer and model ceases, and end when the model comes to rest or when it has been in contact with any part of the building for more than five seconds.
- (j) A flight scores zero if any part of the model becomes detached during the flight.
- (k) One attempt is allowed for each official flight but if, during that attempt, the model collides accidentally with a person or object held by a person or another airborne model the flyer has the option of keeping the time or making a further attempt.
- (l) Each official flight must be timed by two timekeepers with stop watches and each shall record the time shown by his watch to one place of decimals. The score will be the mean of the two times recorded to an accuracy of 0.1 second, rounding down if necessary. One timekeeper may be allowed at the discretion of the Contest Director.
- (m) No devices shall be fitted to the models for the purpose of increasing duration by the provision of thrust or any other form of motive power.
- (n) The Contest Director may disqualify any flyer employing any dangerous model or technique.
- (o) No proxy flying will be allowed.
- (p) Any flight which is to be considered for record purposes shall be timed by two timekeepers at least one of which is not a member of the flyer's club. The stopwatches used must be submitted to the Contest Director or any other person acceptable to the Indoor sub-committee after the flight for checking.
- (q) At a contest the Contest Director may recall the flight cards from time to time to keep the scoreboard up to date.
- (r) 12" span class: Models flown in this class shall have a wing span not exceeding 304.8 mm (12 inches).

### **3.23.7 CO<sub>2</sub> Duration (Indoor)**

Motive power to be a CO<sub>2</sub> powered motor using a tank whose capacity with associated pipework shall not exceed 3.25 cm<sup>3</sup>.

All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. except that an attempt shall be less than 30 seconds.

## **3.23.8 Peanut Duration**

### **3.23.8.1 Model specification.**

- (a) Rubber powered monoplanes only.
- (b) Wing span 13" maximum projected; wing chord 2.5" maximum.
- (c) Tail span 7" maximum; tail area 14 in<sup>2</sup> maximum.
- (d) Overall length including propeller 13" maximum.
- (e) Propeller diameter 6" maximum.
- (f) Cross-section of fuselage 2 in<sup>2</sup> maximum.
- (g) Airframe weight (without rubber) 4 g minimum.
- (h) two wheeled undercarriage required; flights must ROG

### **3.23.8.2 Scoring**

The best single flight from six attempts.

## **3.24 Indoor Beginner Class - FAI Class F1M Provisional Rules**

**3.24.1** Definition will be as (3.21).3.4.1 plus:

### **3.24.2 Characteristics of Indoor Model Aircraft**

The wing span of the model shall not exceed 460 mm, monoplanes only permitted. The minimum weight of the airframe is 3 grams. The maximum weight of the rubber motor shall not exceed 1.5 grams. The covering of the model may consist of any material except microfilm.

**3.24.2** The number of flights will be as (3.21).3.4.3.

### **3.24.3 Definition of an Official Flight**

Only flights of 60 seconds or more will be considered as official. A flight of less than 60 seconds duration will be considered a delayed flight and there will be one delayed flight allowed for each of the six official flights; the delayed flights will not be accumulative.

**3.24.4** Number of Models - as Para. (3.21).3.4.5.

**3.24.5** Collision rule - as Para. (3.21).3.4.6.

**3.24.6** Steering - as Para (3.21).3.4.7

**3.24.7** Classification - as Para. (3.21).3.4.8.

**3.24.8** Timing of Flights - as Para. (3.21).3.4.9.

**3.24.9** Number of Helpers - as Para. (3.21).3.4.10.

**3.24.10** Launching - as Para.(3.21).3.4.11.

**3.24.11** Ceiling Height Categories - as Para. (3.21).3.4.12.

### **3.33 EZB Rules - Full FAI Provisional Class F1L Rules**

#### **3.33.L.1 Definition**

Monoplane model aircraft powered by one (1) extensible motor, and in which lift is generated by aerodynamic forces on fixed surfaces.

#### **3.33.L.2 Characteristics**

Wingspan, maximum projected .....457.2 mm (18 inches)

Wing chord maximum.....76.2 mm (3 inches)

Tailplane area, maximum .....50% of wing area

##### **(a) Structure**

- (1) Only balsa wood and adhesive are to be used for the basic structure. Exempted are the propeller shaft, rear hook, thrust bearing, surface holding fittings and reinforcements for their attachments. No external bracing is allowed except balsa wood wing struts.
- (2) The motor stick must be a solid, single piece of balsa. The tail boom must also be solid and of one piece but may be an extension of the motor stick. Balsa splices up to one centimetre in length may be used to repair breaks in the motor stick or boom.
- (3) The propeller must be all balsa except for ground adjustable pitch fittings if used.
- (4) There are to be no devices for changing any part of the model's geometry or torque during flight. Only the normal flexing of the structure due to flight loads or motor forces is allowed.

##### **(b) Covering**

- (1) Models are to be covered with any commercially available solid sheet material such as paper or plastic.
- (2) Microfilm is not allowed.

##### **(c) Weight**

Weight of the model aircraft without rubber motor shall not be less than 1.2 g.

#### **3.33.L.3 Number of Flights**

Each competitor shall be allowed six flights, of which the best two will be taken for classification.

**3.33.L.4** Definition of an Official Flight - As Para. (3.21).3.4.6

**3.33.L.5** Number of Models - As Para. (3.21).3.4.5

**3.33.L.6** Collision Rule - As Para. (3.21).3.4.6

**3.33.L.7** Steering of Models - As Para. (3.21).3.4.7

**3.33.L.8** Classification - As Para (3.21).3.4.8

**3.33.L.9** Timing of Flights - As Para. (3.21).3.4.9

**3.33.L.10** Number of Helpers - As Para. (3.21).3.4.10

**3.33.L.11** Launching of Models - As Para. (3.21).3.4.11

**3.33.L.12** Ceiling Height Categories - As Para. (3.21).3.4.12

### **3.34 Intermediate Stick**

**3.34.1** All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. or where otherwise specified.

#### **3.34.2 Specification of Model**

- (a) Maximum projected area of wing is 100 in<sup>2</sup>.
- (b) Propeller may be of built up construction.
- (c) No microfilm covering allowed of any open framework on model including propeller.
- (d) Maximum tailplane area is 50% of projected wing area.

### **3.35 Catapult Glider**

**3.35.1** All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. or where otherwise specified.

#### **3.35.2 Specification of Model**

- (a) Maximum projected span of model is 12 inches.
- (b) Maximum wing chord is 3 inches.
- (c) Maximum length of catapult handle is 6 inches.
- (d) Catapult to be powered by one loop of rubber strip which has a maximum width of 1/4 inch.
- (e) Both the catapult handle and the catapult glider must be hand held by the competitor at launch.

### **3.36 Saint Formula**

**3.36.1** All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. and where otherwise specified.

#### **3.36.2 Specification of Model**

- (a) The model is rubber powered using a single skein motor enclosed in a fuselage. No gears are allowed and any covering material other than microfilm is allowed.

- (b) Fuselage : The maximum length of the excluding propeller is 330 mm. Minimum cross section is 3 cm x 4 cm over a length of 5 cm. There must be a minimum transparent area of 2 cm<sup>2</sup> viewed from the front and sides to represent the cabin, windshield or cockpit cover.
- (c) Wing : Maximum projected span is 330 mm. Maximum chord for a monoplane is 80 mm, for a biplane the maximum sum of the wing chords is 100 mm with one of the chords being 40 mm minimum.
- (d) Tailplane : Maximum span is 150 mm, maximum chord is 60 mm.
- (e) Landing Gear : Two legs and two freely rotating wheels of 18 mm minimum diameter are obligatory.
- (f) Propeller : Maximum diameter is 150 mm, maximum chord is 25 mm.
- (g) Weight : Minimum flying weight without motor is 2 gm.

### **3.37 Living Room Stick**

**3.37.1** All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. and where otherwise specified.

#### **3.37.2 Specification of Model**

- (a) Wing : Maximum projected span is 7 inches. Maximum chord is 2.5 inches.
- (b) Fuselage : Motor stick and tail boom to be of solid construction. Maximum motor stick length from front bearing to rear hook is 5 inches and maximum overall length from front of bearing to rearmost point is 10 inches.
- (c) Tail : Maximum tailplane area is 50% of the projected wing area.
- (d) Covering : Anything except microfilm.
- (e) Propeller : To be of solid wood construction, maximum diameter is 7 inches.
- (f) Weight : Minimum flying weight less motor is 0.43 gm.
- (g) Materials : No exotic materials such as boron or carbon fibre is allowed.

### **3.38 USA Rules Easy B**

**3.38.1** All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. and where otherwise specified.

#### **3.38.2 Specification of Model**

- (a) Wing : Maximum projected span is 18 inches, maximum chord is 3 inches, monoplane consideration only

- (b) Tail : Maximum area allowed is 50% of projected wing area.
- (c) Propeller : To be of solid wood construction, no variable pitch or flaring mechanisms allowed, no limit on diameter.
- (d) Stick : Motor stick and tail boom to be of solid wood construction only.
- (e) Weight : No minimum model weight.
- (f) Bracing : Wood bracing only is allowed (no boron or metal wire to be used for this purpose).
- (g) Covering : Anything but microfilm allowed.

### **3.39 No-Cal Profile Scale**

**3.39.1** All rules of class 3.21 (F1D) models shall apply except for 3.21.3.4.2. and where otherwise specified.

#### **3.39.2 Specification of Model**

- (a) The model should be a recognisable model of a full sized aircraft, with a wingspan not exceeding 16 inches.
- (b) The weight of the model excluding rubber motor shall be no less than 6.2 gm.
- (c) No fancy gadgets permitted. A plastic propeller is permitted. Balsa wood and jap-tissue shall be the main construction materials. The use of hi-tech materials such as boron, carbon fibre etc. is not permitted.
- (d) The model must have control surface outlines, window outline and registration markings as per the modelled full sized aircraft.
- (e) The model must have the full landing gear as per the full sized aircraft. No profile gear is allowed. Models of aircraft with retractable gear may be depicted with the gear retracted.

### **3.45 BMFA Dart**

#### **3.45.1 The Model**

The BMFA Dart is to be built using the plan/covering as supplied in the kit with no changes to area or plan form.

#### **3.45.2 The Propeller**

The propeller unit used is to be the one supplied in the kit. The blades can be scraped and the pitch of the blades can be changed but the blade profile cannot be changed. The propeller bearing must remain standard and unmodified except for changing the thrust line.

#### **3.45.3 The Motor**

Any rubber motor can be used.

## **3.44 Olympia Class BMFA Dart**

### **3.44.1 The Model**

The model shall be constructed from a standard BMFA Dart kit as supplied and no substitutions shall be allowed except where breakage occurs. The propeller and noseblock must be as standard and unmodified.

### **3.44.2 The Entrant**

The model must be built and launched by the entrant. The rubber motor may be wound by another.

## **3.46 FAI CLASS F1N Indoor Hand Launched Glider Full FAI Provisional Rules**

### **3.46.3.N.1. Definition**

Model aircraft which is flown in an enclosed space and which is not provided with a propulsion device and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight.

### **3.46.3.N.2. Characteristics**

Models with variable area (e.g. folding wings) are not permitted. The number of models eligible for entry by each competitor is three.

### **3.46.3.N.3. Number of Flights**

The competitor shall be allowed 9 flights.

### **3.46.3.N.4. Definition of an Official Flight**

- a) The duration achieved on the first attempt unless this attempt is unsuccessful under the definition of 3.N.5.
- b) The duration achieved on the second attempt. If the second attempt is also unsuccessful under the definition of 3.N.5., then a zero time is recorded for the flight.

### **3.46.3 N 5. Definition of an Unsuccessful Attempt**

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

- a) the model aircraft collides with a person or an object held by a person (the competitor excluded)
- b) the model aircraft collides with another model in flight

### **3.46.3.N.6. Timing of Flights**

The flights must be timed by two timekeepers with electronic stopwatches with digital readouts. The time recorded is the mean of the times registered by the timekeepers, but reduced to the nearest one tenth of a second below the resulting mean time, unless the

difference between the times registered shows evidence of an error in the timing, in which case the organiser should determine, with the FAI Jury, which time should be registered as the official time or what other action should be taken.

From Section 4b. para. B12., only B.12.1 and B.12.2 apply to class FIN.

The timing of each flight shall commence when the model is launched. Timing will terminate when:

- a) the model aircraft comes to rest on the floor of the building.
- b) the model aircraft comes into contact with any, part of the building or its contents other than the floor and translational movement ceases.

#### **3.46.3.N.7 Classification**

The total of the three best flights of each competitor shall be taken for the final classification. In the case of a tie the fourth best flight decides and so on in the case of a further tie.

#### **3.46.3.N.8 Launching of Models**

Launching is by hand, the competitor standing on the ground. Jumping is allowed.

#### **3.46.3.N.9 Ceiling Height Categories**

The following ceiling height categories are recognised for contests and records:

1. - less than 8 metres.
- II. - between 8 and 15 metres.
- III. - between 15 and 30 metres.
- IV. - higher than 30 metres.

The height of the ceiling is defined as the vertical distance from the floor to the highest point at which a circle of 15 metres can be inscribed, below the primary structure of the building.

## **3.52 F1D Team Trials Rules**

### **3.52.1 General Format**

- (a) The GBR Team places will be offered to those three entrants who gain the highest points totals over a series of events.
- (b) The points will be gathered from each entrant's top 3 placings from a maximum of 5 scores (refer to item 21).
- (c) Dependant on the venue, the Indoor Technical Committee may choose to fly the event on quarter, third, half, or full motors ( The date and opening times shall be announced a minimum of 14 days prior to the event through the BMFA website or BMFA News) Any part motor must not exceed the overall weight of its percentage (1/4, third or half) of 1.2grams.
- (d) The entrant will choose how many events he/she wishes to partake in.
- (e) Each Trials event will be flown over a maximum of two days.
- (f) Each contest day will be run in rounds, with a minimum of three rounds on any one day with the aim to evenly space the rounds throughout the day (exact time for the rounds will be confirmed and announced at the start of each days flying)
- (g) Each entrant will have a maximum of six competitive flights per event, which may be taken over 1 or 2 days.

### **3.52.2 Scoring**

- (a) The entrant who gains the highest total flight time (two flights added together) in each event will place 1<sup>st</sup> and will be awarded 100 points (100%).
- (b) In the event of two entrants having identical times the third best flight will be reviewed on a count back basis to establish the 1st place.
- (c) The scores from the first placed entrant will form a benchmark (100 %) for points to be calculated for every other entrant.
- (d) All other entrants will be awarded points based on the percentage of the winner's time.
- (e) All scores will be rounded down to the nearest single point.
- (f) The event scores will be carried forward to an overall league table to be published and distributed shortly after each Trials date through personal Email to all those attending and via the BMFA Website.
- (g) Flight cards will be issued to all entrants before the start of the event.
- (h) Timekeeping must be carried out by two BMFA members and both names must be clearly marked & signed on the flight card.
- (i) Flight times will be returned immediately after each flight and recorded at contest control prior to the next attempt commencing.

### **3.52.3 Events**

- (a) Models will be checked and scrutinised as necessary by the BMFA nominated Contest Director/ helper during each trial event – all to current FAI rules/ model specifications.
- (b) It will be the Indoor Technical Committees decision to postpone/ alter or cancel an event due to extreme weather forecasts etc and to notify the entrants of this.

- (c) The contest Director may alter the format of the contest for any day affected by unusual conditions or circumstances.
- (d) The contest Director's decision on the day will be final. The usual protests and Appeals procedures apply as per 3.20.3.
- (e) In the event of a Trials date being cancelled, where possible the published reserve dates will be utilised.

### 3.52.4 Classification

If less than five Trials dates are flown due to cancellations, then all entrant's best two trial results will be taken and used as the final result.

**Example:**

1<sup>st</sup> Flier A total 60mins 100% = 100points = 100

2<sup>nd</sup> Flier B total 55mins 92% = 92

3<sup>rd</sup> Flier C total 10mins 17% = 17

Carried forward to league table formatted as shown below.

Name	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Total	Position
Flier B	100	50	60	90	92	282	2 <sup>nd</sup>
Flier D	10	22	55	80	17	157	5 <sup>th</sup>
Flier C	DNF	80	90	100	DNF	270	3 <sup>rd</sup>
Flier E	40	60	100	90	DNF	250	4 <sup>th</sup>
Flier A	97	100	87	90	100	297	1 <sup>st</sup>

Therefore:

The team places would be offered to Flier A, Flier B & Flier C with reserve place being Flier E etc.