



**BRITISH MODEL FLYING ASSOCIATION**  
**CONTEST RULES**  
**SECTION 7**  
**RADIO CONTROLLED SILENT FLIGHT**  
**BOOK 1**  
**GLIDERS**

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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# CONTEST RULES - SECTION 7

## SILENT FLIGHT - 2010 - BOOK 1

### RADIO CONTROLLED GLIDERS

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## **Changes to the rule book.**

All changes to the rule book are marked with a side bar. This section has been marked an example.

Many classes in this rule book are taken directly from the FAI Sporting Code and are noted as such. Some of these classes have BMFA variations written for them. In any such case the rule in the original text that is modified by the variation is marked \* thus \*.

The 'Official BMFA Contest Rules' are included in Sections 1 and 2 of the Contest Rule Books. Rules in the other Contest Rule Books, sections 3 to 7 inclusive (including this rule book) are either classed as 'BMFA Contest Rules' or, if requested by a Technical Committee, the 'FAI Class' category may be applied to any class flown to FAI rules and will be noted as such in the rule heading.

## **Gender**

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

## **Book 1**

There are some changes in F3B. There are significant changes in the UK F3J variations and in the F3J Team Selection League. There are some changes in the F3K League results rules.

## **Book 2**

The use and definition on energy limiters has been introduced in many of the Electric Classes.

There are some changes in F5B and F5B 1000 is now F5B 2 Cell. There are a considerable number of changes in the eSoaring class.

F5D has revised battery definitions and the Team Selection and League Scoring rules have been revised.

## **Eligibility to enter BMFA competitions**

Following queries about the right of non-BMFA members to enter BMFA competitions, the following is a quote from the BMFA General Rules, Section 2, Rule 2.2.5 Eligibility:

All BMFA members must produce on demand their current membership card. Non-members are permitted to enter BMFA events on payment of five times the standard entry fee, but must produce evidence of valid insurance cover.

There are variations on this within the various classes within this rule book, especially the rules concerning the soaring league events. Those particular sections should be carefully checked if you are unsure of your status.

## **FAI Classes - Numbering System**

As noted in the index on page 1, BMFA class numbers have been allocated to the FAI silent flight classes.

These class numbers are shown next to each class heading but, to avoid long strings of numerals, the individual rule numbers shown are just the actual FAI rule numbers, taken from the FAI Sporting Code. When quoting a rule number, the class number should be noted first.

## **7.1 General Rules**

### **7.1.1 Definitions of a Radio Controlled Glider**

Aeromodel which is not provided with a propulsion device and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed except for control purposes (i.e. not rotating or ornithopter type surfaces).

### **7.1.2 Definitions of an Electric Powered Glider**

Aeromodel, as in 7.1.1, but when propulsion is affected by fixed or foldable propeller(s) driven by an electric motor which may or may not be regulated during flight.

### **7.1.3 Radio Frequencies**

Radio frequencies on which R/C Gliders are flown should be EVEN NUMBERS in the 35 MHz BAND ONLY. Competitors should realise the need to be able to change frequencies in the case of a fly-off in certain competitions.

2.4 GHz radio equipment may also be used.

27 MHz band Radios are not recommended for other than MINI GLIDER contest work.

A full listing of radio frequencies available for model control is published in the BMFA Members Handbook, section 1.2.6.

## **7.2 General Rules For Silent Flight Contests**

### **7.2.1 Object**

To provide standards for the competitive flying of R/C Silent Flight models where these are not otherwise specified.

### **7.2.2 Safety**

It is the responsibility of the Contest Director (CD) to ensure the safety of contestants, assistants and any members of the public who may be present at an event.

It is the responsibility of all competitors to report to the CD any incident which causes injury, however minor, to any person. Competitors also have a responsibility to report situations which could potentially endanger the CD.

The CD must make a written report of the incident(s) to the Safety Representative of the Silent Flight Technical Committee stating what happened, the cause of the incident and giving an opinion of how a repetition could be avoided in future

### **7.2.3 Flying Site**

Competitions, other than slope events, must be held on sites having reasonably level terrain which will minimise the possibility of slope and wave soaring.

### **7.2.4 Number of Models**

- (a) The competitor may use not more than two models or the combined parts thereof in any one competition unless otherwise allowed in the class rules.
- (b) The competitor shall not allow any other competitor to use these models or the parts thereof during the same competition.

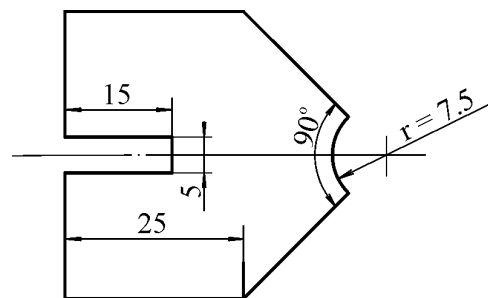
- (c) The competitor shall display on the wing of any model flown in a permanent manner in characters not less than 25 mm high his name or BMFA number.

**7.2.5 Characteristics of Model Aircraft**

- (a) Maximum Surface Area..... 150 dm<sup>2</sup> (2325 in<sup>2</sup>)  
 Maximum Flying Weight..... 5 Kilograms (11.023 lbs)  
 Maximum Surface Loading ..... 75 g / dm<sup>2</sup> (24.51 oz / ft<sup>2</sup>)  
 Minimum Surface Loading ..... 12 g / dm<sup>2</sup> (3.95 oz / ft<sup>2</sup>)
- (b) Any device for the transmission of information from the model to the pilot by means of radio equipment is prohibited.
- (c) Nose of model shall have a radius of not less than 7.5 mm.
- (d) All ballast must be carried within the airframe.

**BE SURE TO CHECK INDIVIDUAL EVENTS FOR FURTHER RESTRICTIONS WHICH MAY APPLY**

**FAI TEMPLATE FOR  
NOSE RADIUS, TOWHOOK  
AND MARKING**



**7.2.6 Radio**

- (a) Radios in the 35 MHz band shall be able to operate simultaneously with other transmitters, preferably at 10 kHz but at least 20 kHz from the control transmitter.
- (b) Radios in the 27 MHz band are not recommended for other than MINI GLIDER contest work. However where they are used they shall be able to operate simultaneously with other transmitters, preferably 20 kHz but at least 50 kHz from the control transmitter.

**7.2.7 Control of Transmitters**

- (a) The organiser cannot begin the competition flights until all competitors have handed over all transmitters to the organisers. Failure to hand in a transmitter before the official starting time of the contest will result in disqualification.
- (b) Any test transmission during the competition without the permission of the organisers is forbidden and entails disqualification.
- (c) The competitor must hand over his transmitter to the designated official immediately after finishing his flight.

**7.2.8 Competitors and Helpers**

- (a) The competitor (pilot) must operate his/her own radio equipment personally.
- (b) Each competitor is allowed a total of three helpers.

### **7.2.9 Competition Flights**

See individual event rules for any specific rules on competition flights, otherwise the following applies.

- (a) The competitor will be allowed at least TWO (preferably more) official flights.
- (b) The competitor will be allowed TWO attempts at each official flight.
- (c) There is an official attempt at a flight when the model has left the hands of the competitor or his/her helper under the pull of the launching apparatus.
- (d) If, for any reason, the official flight is timed at less than 60 seconds in duration, the competitor will be allowed a second attempt which must be made immediately and within the allocated time slot.
- (e) A complete slot must be re-flown if any flight(s) was not judged by fault of the organisers or time-keepers.
- (f) All flights must be timed by at least TWO stopwatches, one of which must have a digital display. In the event of both watches failing the flight will count as zero.

### **7.2.10 Cancellation and Disqualification**

- (a) The flight is cancelled and recorded as a zero score if the competitor used a model not conforming to any items of rule 7.2.5. In the event of intentional or flagrant violation of the rules, in the judgement of the Contest Director, the competitor may be disqualified.
- (b) The flight is cancelled and recorded as a zero score if the model loses any part in flight.
- (c) The loss of any part of the model during landing (touchdown) will not be recorded.
- (d) The flight is cancelled and recorded as a zero score if the model is piloted by anyone other than the competitor.
- (e) The flight is cancelled and recorded as a zero score if some part of the model does not land within 75 metres of the centre of the designated landing circle/area (this does not apply to class F3B).

### **7.2.11 Protests and Appeals**

- (a) Any competitor wishing to register a protest must do so at the event to the Contest Director.
- (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 two 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 the appeal is upheld, the protest fee will be returned.

## 7.13.(5.3) Class F3B - Thermal Soaring Models (FAI Class)

**NOTE - Those rules marked \* . . . \* are modified in class 7.26, UK Variations on class F3B for use in the UK F3B League.**

### 5.3.1. General Rules

#### 5.3.1.1. Definition of a Radio Controlled Glider

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 control surfaces. Model aircraft with variable geometry or area must comply with the specification when the surfaces are in maximum and minimum extended mode. The model aircraft must be controlled by the competitor on the ground using radio control. Any variation of geometry or area must be actuated at distance by radio control.

#### 5.3.1.2. Prefabrication of F3B Model Aircraft

Paragraph B.3.1. of Section 4B (Builder of the Model aircraft) is not applicable to class F3B.

#### 5.3.1.3. Characteristics of Radio Controlled Gliders F3B

- a) Maximum surface area (St) ..... 150 dm<sup>2</sup>  
Maximum flying mass ..... 5 kg  
Loading ..... 12 to 75 g/dm<sup>2</sup>  
Minimum radius of fuselage nose ..... 7.5 mm (see template)
- b) No fixed or retractable arresting device (i.e. bolt, sawtooth-like protuberance, etc.) is allowed to slow down the model aircraft on the ground during landing. The underside of the model aircraft must not have any protuberance other than the tow-hook and surface control linkages. The tow-hook must not be larger than 5 mm in frontal width and 15 mm in frontal height.
- c) The radio shall be able to operate simultaneously with other equipment at 10 kHz spacing below 50 MHz and 20 kHz spacing above 50 MHz.
- d) Any device for transmission of information from the model aircraft to the competitor is prohibited. Any use of telecommunication devices (including transceivers and telephones) in the field to communicate with competitors, their helpers or team managers while doing the competition task is not allowed.
- e) \* The competitor may use a maximum of three (3) model aircraft in the contest. All exchangeable parts (wing, fuselage, tail planes) must be marked uniquely and in a way that doesn't allow replication of this mark on additional parts. \*
- f) The competitor may combine the parts of the model aircraft during the contest; provided the resulting model aircraft used for flight conforms to the rules and that the parts have been checked before the start of the contest. See also 5.3.2.1.
- g) For the sake of randomness of the starting order among the successive rounds, each competitor must enter three (3) different frequencies. The competitor can be called to use any of these frequencies during the contest, so long as the call is made at least 1/2 hour prior to the beginning of a round and in written form to the affected team manager.

#### 5.3.1.4. Competitors and Helpers

The competitor must operate his radio equipment personally. Each competitor is permitted up to three (3) helpers at the winch line, including the team manager, who must not give any turning signals near base B during tasks B and C.

A maximum of two (2) more helpers are permitted to be utilised only at the turn-around pulleys to cover all wind directions.

#### 5.3.1.5. Definition of an Attempt

- a) \* For each task (ref. 5.3.2.1.), during the working time allocated, the competitor is entitled an unlimited number of attempts. An attempt starts when the model aircraft is released from the hands of the competitor or his helper(s) under the tension of the tow-line. No change of model aircraft or parts of the model aircraft is allowed after starting the first attempt. \*
- b) The competitor is entitled to a new working time period if any of the following conditions occur and are duly witnessed by an official of the contest:
  - i) his model aircraft in flight collides with another model aircraft in flight, or another model aircraft in the process of launch (released for flight by the competitor or his helper) or, with a launch cable during the process of launching. Should the flight continue in a normal manner, the competitor may demand that the flight in progress be accepted as official, even if the demand is made at the end of the original working time
  - ii) his model aircraft or launch cable in the process of launch collides with another model aircraft or launch cable also in the process of launch (released for flight by the competitor or his helper), or with another model aircraft in flight. Should the flight continue in a normal manner, the competitor may demand that the flight in progress be accepted as official, even if the demand is made at the end of the original working time
  - iii) his launch cable is crossed or fouled by that of another competitor at the point of launch of his model aircraft (released for flight by the competitor or his helper).
  - iv) the flight has not been judged by the fault of the judges or timekeepers.
  - v) in the case of an unexpected event, outside the competitor's control, the flight has been hindered or aborted.
- c) For all cases described above the competitor may demand that the flight in progress in which the event occurred will be accepted as official. Note is made that in the event the competitor continues to launch or does a re-launch after clearing of the hindering condition(s) he is deemed to waive his right to a new working time.
- d) When a competitor obtains a new working time period, and his model aircraft has been damaged beyond repair during the attempt where he obtained this new working time, he is entitled to continue flying the current round with his second model aircraft and this notwithstanding rule 5.3.2.1. This rule applies only when the damage inflicted to the model aircraft is directly linked to the incident that gave the right to the re-flight.
- e) In case of additional attempts in task A (Duration) during a round or task B (Distance) during a round, the competitors entitled to that additional attempt must fly within a group that is not complete in number or in one or more groups newly formed. If this is not possible due to a clash of frequencies, those entitled to another flight fly within their original group once more. The better of the two results

will be the official score except for those competitors who are flying the additional attempt. For those the result of the repetition is the official score.

#### **5.3.1.6. Definition of the Official Flight**

The official flight is the last flight performed during the working time.

#### **5.3.1.7. Cancellation of a Flight and Disqualification**

- a) Unless otherwise specified a flight in progress will be annulled for an infraction of any rule. In the case of intentional or flagrant violation of the rules, in the judgement of the Contest Director, the competitor may be disqualified.
- b) The flight in progress will be penalised with 100 points if the model aircraft loses any part either during the launch or the flight. The loss of any part in a collision with another model aircraft or during landing (ie in contact with the ground) is not taken into account. The penalty of 100 points will be a deduction from the competitor's final score and shall be listed on the score sheet of the round in which the penalisation was applied.
- c) The competitor is disqualified if the model aircraft (in flight) is controlled by anyone other than the competitor.
- d) If the model aircraft touches either the competitor or his helper during landing manoeuvres of task A, no landing points will be given.
- e) The upwind turnaround device must be fixed safely to the ground. If the pulley comes loose from its mounting support or the turn around device is torn out of the ground, the competitor shall be given a penalty of 1000 points. The penalty of 1000 points will be a deduction from the from the competitor's final score and shall be listed on the score sheet of the round in which the penalisation was applied.
- f) The winch must be fixed safely to the ground. If the winch is torn out of the ground or rotating parts of the winch are separated (excluding parts of the tow-line) the flight is penalised with 1000 points. The penalty of 1000 points will be a deduction from the from the competitor's final score and shall be listed on the score sheet of the round in which the penalisation was applied.

#### **5.3.1.8. Organisation of Starts**

- a) \* The competitors shall be combined in groups with a draw, in accordance with the radio frequencies used, to permit as many flights simultaneously as possible. The draw is organised in such a way that, as far as possible, there are no competitors of the same team in the same group. \*
- b) \* The composition of the groups must be changed every round in order to have different combinations of competitors. For task A (duration), there must be a minimum of five competitors in a group. For task B (distance) there must be a minimum of three competitors in a group. For task C (speed) a group may consist of a minimum of eight competitors or all competitors. \*

It is preferable for the organiser to orientate the starting order for task C at the inverted ranking calculated out of the results of all tasks flown until that moment. For the first round the starting order for task C should always be identical with the starting order of task A. Alternatively the organiser may use the task A starting order in subsequent task C rounds.

- c) The result of a group is annulled if only one competitor has a valid result. In this case, the group will fly again and the result will be the official result.
- d) The flying order of different groups is established with the draw too. A different

starting order shall be used for each round.

- e) \* The competitors are entitled to 5 minutes of preparation time before the starter gives the order to count off working time. \*

#### **5.3.1.9. Organisation of Contests**

- a) \* For transmitter and frequency control see Section 4B, para B.10. \*
- b) \* The official will issue the transmitter to the competitors only at the beginning of their preparation time, according to 5.3.1.8. \*
- c) Sighting apparatus, winches or any device constituting an obstacle, should be placed on Base A and Base B, a minimum of 5 metres from the safety line for task C. Apparatus for judging the safety line in task C shall be placed a minimum distance of 5 metres from Base A or B outside the course.
- d) The contest director must inform without delay the competitor and/or his team manager about any decision taken, eg in the case of a re-fly, a penalty etc.

#### **5.3.1.10. Safety Rules**

- a) The organiser must clearly mark the boundary between the landing area and the safety area assigned for other activities.
- b) After release of the model aircraft from the hand of the competitor or helper, any contact of the model aircraft with any object (earth, car, stick, plant, tow-line, etc) within the safety area will be penalised by 300 points, except in the circumstances described in paragraph 5.3.1.5 b) items 1, 2, 3, and 5, and in the case of a line break at the moment of release of the model aircraft. Contact with a person within the safety area will be penalised by 1000 points. The number of contacts during one attempt does not matter (maximum one penalty for one attempt). The penalty will be a deduction of 300 or 1000 points from the competitor's final score and shall be listed on the score sheet of the round in which the penalisation was applied.

## 7.14.(5.3) Rules For F3B Multi-Task Soaring (FAI Class)

**NOTE - Those rules marked \* . . . \* are modified in class 7.26, UK Variations on class F3B for use in the UK F3B League.**

### 5.3.2.1. Definition

- a) This contest is a multi-task event for radio controlled gliders, which includes three tasks:

A) Duration	B) Distance	C) Speed
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- b) The combination of task A, B and C constitutes a round. A minimum of two rounds must be flown. Except at World and Continental Championships the last round may be incomplete, i. e. only one task or any combination of two tasks. In the case of a World Championships each competitor is entitled a minimum of five rounds subject to the provision of rule B.13, Section 4B. At the discretion of the organiser any task may be flown first in a scheduled round.
- c) \* Any single round must be completed with the same model aircraft, without any change of parts. Only the addition of ballast (which must be located internally in the model aircraft and with which the model aircraft must conform to rule 5.3.1.3.) and/or change of angles of setting are allowed. \*
- d) Variation of geometry or area is allowed if actuated at distance by radio control.

### 5.3.2.2. Launching

- a) \* All launching shall take place in an area as designated by the organiser with provisions made for launching into the wind. All launches will be made with an electrical powered winch approved by the organiser or Contest Director. \*
- b) Upwind turnaround devices, which must be used, shall be no more than 200 m from the winch. The height of the axis of the turnaround pulley from the ground must not exceed 0.5 metre. Release of the model must occur within approximately 3 metres of the winch. An automatic means must be provided to prevent the line unwinding from the reel during launch.
- c) The winch shall be fitted with a single starter motor. The starter motor must come from serial production. It is allowed to fit the arbour of the rotor with ball or needle roller bearings at each end. The drum must be driven directly by the motor. Any further change of the original motor will lead to disqualification according to paragraph B.18.1. The drum must have a fixed diameter.
- d) The power source shall be a 12 volt lead/acid battery. The cold cranking capability of the winch battery must be specified according to one of the following standards:  
300 amperes max. according to DIN 43539-02 (30s/9V at  $-18^{\circ}\text{C}$ ).  
355 amperes max. according to IEC/CEI 95-1 (60s/8,4V at  $-18^{\circ}\text{C}$ ).  
500 amperes max. according to SAE J537, 30s Test (30s/7,2V at  $0^{\circ}\text{F}$ ).  
510 amperes max. according to EN 60095-1 (10s/7.5V at  $-18^{\circ}\text{C}$ ).  
Other standards are acceptable if evidence is provided that these standards are equivalent to one of the above stated standards.
- e) The battery must supply the winch motor with current through a magnetically or mechanically actuated switch. The use of any electronic device between the winch motor and the battery is forbidden. A competitor may interchange various parts as

he wishes provided the resulting winch conforms to the rules.

- f) \* The battery must not be charged on the launching line. The motor must not be cooled, and the battery must not be heated. \*
- g) The purpose of this rule is to limit the power used for the launch. Therefore with the exception of the single winch battery, line stretch, and the small amount of energy in the rotating rotor and winch drum, no energy storage devices like flywheels, springs, weights, pneumatic devices or any similar devices is allowed.
- h) The complete winch (battery, cables, switch and motor) must have a total resistance of at least 23.0 milliohms. The allowed resistance may be obtained by adding a fixed resistor or resistors between the motor and battery. The design must not allow an easy change of the total resistance at the launch line (e.g. by shorting the resistor, or resistors) except opening and closing the circuit.
- i) The plus and minus pole of the battery must be readily accessible with alligator (crocodile) clips for voltage measurements. One of the cables from the battery (through which the total current flows) must be accessible for the clamp transducer (clamp meter) and the calibrated resistor.
- j) Measuring: The battery must stay unloaded for at least two minutes after the previous test or launch. The measuring of the circuit resistance consists of recording the battery voltage  $U_b$  immediately before closing the winch switch and of recording the current  $I_{300}$  and the voltage  $U_{300}$  300 milliseconds (+30 ms) after the winch current starts to flow. Before the end of this 300 ms interval the rotor of the motor shall stop rotating.
- k) For the test a digital voltage-measuring instrument (accuracy less or equal to 1%) is used, which enables the measurement of the voltage of the battery and the output voltage from the I/U-transducer 300 ms (+30 ms) after the current to the winch is applied. The transducer for measuring the current may be a clamp transducer (range 0-600 or 0-1000A, accuracy less or equal to 2%) or a calibrated resistor (0.1 milliohm, accuracy less or equal to 0.5%) in the negative path of the circuit.

The resistance is calculated with the formula:

$$\text{Measurement with clamp transducer } R_{\text{tot}} = 1000 \times U_b / I_{300}$$

$$\text{Measurement with shunt } R_{\text{tot}} = (1000 \times U_b / I_{300}) - 0.1$$

( $R_{\text{tot}}$  in milliohms,  $U_b$  in volts,  $I_{300}$  in amperes)

- l) A first measurement is taken in order to check the correct functioning of the measuring equipment and is discarded.

Three subsequent measurements should be made with an interval of at least two minutes after the previous test or launch. The total resistance of the winch equipment is the average of these three (3) respective results.

Voltage and current must be displayed to be able to calculate the total resistance by hand. If the total resistance is calculated automatically then it must be shown simultaneously with the voltage and current values.

The winch equipment is declared as being in accordance with the rules if its total resistance is at least 23 m.ohms.

- m) At the test of the winch before the competition the voltage of the battery  $U_{300}$  must be greater or equal to 9V; this does not apply for testing during the competition.
- n) The organiser must appoint at least two processing officials, who will process the winches with a single measuring apparatus, or several measuring apparatus

proven to produce reproducible results within a tolerance of 0.5 %.

- o) There must be a quick release mechanism on the power lead to the battery in order to remove power from the motor in an emergency. (Connections to the battery must be removable without the need for tools).
- p) The flight is penalised with 1000 points if the winch is not in accordance with the rules; this is valid for the flight before the test. The penalty of 1000 points will be a deduction from the competitor's final score and shall be listed on the score sheet of the round in which the penalisation was applied.

#### **NOTE**

The Silent Flight Technical Committee considers that the primary use of the F3B winch tester be restricted to its use at national F3B events for checking for compliance with FAI Rules but that it be available between 1st November and 1st March to members on receipt of a deposit of £150. The F3B League Co-ordinator shall be responsible for its use as directed.

- q) After release of the model aircraft from the towline, the towline must be rewound without delay by operating the winch, until the parachute arrives at the turnaround device. During this procedure the towline should be guided by a helper to avoid damage to other competitors' towlines. The towline must be provided with a measure e.g. a stopper or a metal ring, to prevent it being drawn down through the towline pulley. Then, the towline(s) must be retrieved by hand to the winch. A winch must not be operated when the towline is lying on the ground and across other towlines or strikes another towline during launching
- r) The towline (which must be of non-metallic material except for linkages) must be equipped with a pennant having a minimum area of 5 dm<sup>2</sup>. A parachute (5 dm<sup>2</sup> minimum area) may be substituted for the pennant provided it is not attached to the model aircraft and remains inactive until the release of the cable. During complete rewinding of the line on to the winch, the parachute, if used, must be removed and inactivated.
- s) In the case of Continental and World Championships, a maximum of six winches and six batteries may be used during the competition by any complete team (3 pilots). Interchanging among winches and batteries while keeping compliance with the minimum resistance rule is totally under the responsibility of the team.

### **5.3.2.3. Task A - Duration**

- a) This task must be completed within 12 minutes from the order of the starter, including the towing time.
- b) One point will be awarded for each full second from the time the model aircraft is free flying to the time the model aircraft comes to rest, up to a maximum of 600 points (i.e. 10 minutes maximum), for each full second of flight within the working time; no points will be awarded for flight time in excess of working time. The free flying of the model aircraft commences when the model aircraft is released from the towline.
- c) One point will be deducted for each full second flown in excess of 600 seconds (10 minutes).
- d) Additional points will be awarded for landing, depending upon distance from the spot marked by the organiser, according to the following table:

Distance from spot (m)	Points	Distance from spot (m)	Points
1	100	9	60
2	95	10	55
3	90	11	50
4	85	12	45
5	80	13	40
6	75	14	35
7	70	15	30
8	65	over 15	0

The distance is measured from the model aircraft nose when at rest to the centre of the spot.

No points will be awarded for the quality of landing.

No landing bonus will be awarded if the flight time exceeds 630 seconds.

The measured distance is rounded to the nearest higher metre.

- e) For model aircraft still in the air when the 12 minutes expire, the elapsed flight time only will be taken into consideration for scoring, without any additional points for the precision landing.
- f) A classification based on decreasing number of points awarded will be compiled, called "Partial Score A" - see 5.3.2.6.

#### 5.3.2.4. Task B - Distance

- a) This task must be completed within 7 minutes from the order of the starter, including towing time. The trial begins only after the glider has been released from the tow.
- b) When the model aircraft, in flight, first crosses Base A (imaginary vertical plane) in the direction to Base B, the actual flight time of 4 minutes maximum starts, during which time the model aircraft must complete as many legs as possible from the starting Base A to Base B and conversely.
- c) An audio system or a combined audiovisual system announces to the competitor when his model aircraft crosses the Base A or Base B (imaginary vertical planes). The absence of a signal will indicate that the model aircraft has failed to correctly cross the base. The instruments used to check the crossing of the vertical planes must assure the parallelism of such planes. Timing and signalling shall occur when any part of the model aircraft crosses the base. If an audiovisual system is used, signalling is also valid when the audio system fails or vice versa.
- d) The model aircraft must be identified by the contest director or designated official to the judges at Base A and B before or during the launch. The competitor must stay within a distance of 10 m either side of Base A during the timed flight.
- e) For a model aircraft which lands within 4 minutes flight time only the full 150 m legs will be counted. For model aircraft still in the air when the 4 minutes flight time or 7 minutes expires, whichever comes first, only the completed legs at that moment will be taken into account.

- f) A classification based on decreasing number of total flown legs during the flight time will be compiled, and points given as described in 5.3.2.6., thus establishing the "Partial Score B".

### 5.3.2.5. Task C - Speed

- a) This task must be completed within 4 minutes, from the order of the starter including towing time. The trial begins only after the glider has been released from the tow. After release of the tow-hook, the model aircraft must start the task at Base A within one minute. If the one minute period expires before the model aircraft has crossed Base A for the first time, flying from Base A to Base B, then the model aircraft must be landed and re-launched within the original working time period.
- b) The task consists of flying the distance starting from Base A, to Base B, and conversely, four legs in the shortest possible time.
- c) The flight time is recorded to at least 1/100 s when in flight the model aircraft first crosses Base A and completes four legs of the 150 m course.
- d) An audio system will inform the competitor when the model aircraft crosses the Base A or Base B (imaginary vertical planes). The absence of a signal will indicate that the model aircraft has failed to correctly cross the Base. The instruments used to check the crossing of the vertical planes must assure the parallelism of such planes. The signal is given when any part of the model aircraft crosses the base. The source of the signal (horn, loudspeaker) must not be further than 30 m away from the intersection of base A and the safety plane.
- e) During the timed flight the competitor must stay within a distance of 10 m either side from Base A.
- f) After having completed the task, the model aircraft can land anywhere outside the safety area(s).
- g) Model aircraft which come to rest before having completed the task will score zero.
- h) \* During task C the timed flight shall take place to one side of the safety plane, whilst all judges/time-keepers shall remain on the other side of the safety plane. The side which is to be flown shall be indicated by the organisers taking into account the direction of the sun, etc.
- The flight will be penalised with 300 points, when sighted by means of an optical aid, the safety plane is crossed by any part of the model aircraft. The instrument used to check the crossing of the vertical safety plane must also assure that the safety plane is orthogonal to Base A and Base B. The penalty of 300 points will be a deduction from the competitor's final score and shall be listed on the score sheet of the round in which the penalisation was applied. \*
- i) After release of the tow-hook, when the model aircraft has crossed Base A for the first time, flying in the direction from Base A to Base B, no further attempt is permitted unless the competitor signals his intention to re-launch before Base A is crossed.
- j) A classification based on increasing times to complete the four 150 m legs will be compiled, and points given as described in 5.3.2.6., thus establishing "Partial Score C".

### 5.3.2.6. Partial Scores

For each task the winner of each group receives 1000 points.

a) Partial Score A for each competitor is determined as follows:

$$\text{Partial Score A} = 1,000 \times \frac{P_1}{P_W}$$

Where  $P_1$  = points of the competitor obtained as for 5.3.2.3.

$P_W$  = points of the winner in the related group

(c) Partial Score B for each competitor is determined as follows:

$$\text{Partial Score B} = 1,000 \times \frac{D_1}{D_W}$$

Where  $D_1$  = distance covered by the competitor as for 5.3.2.4.

$D_W$  = distance covered by the winner in the related group

(d) Partial Score C for each competitor is determined as follows:

$$\text{Partial Score C} = 1,000 \times \frac{T_W}{T_1}$$

Where  $T_1$  = time of the competitor as for 5.3.2.5.

$T_W$  = time of the winner of the related group.

### 5.3.2.7. Total Score

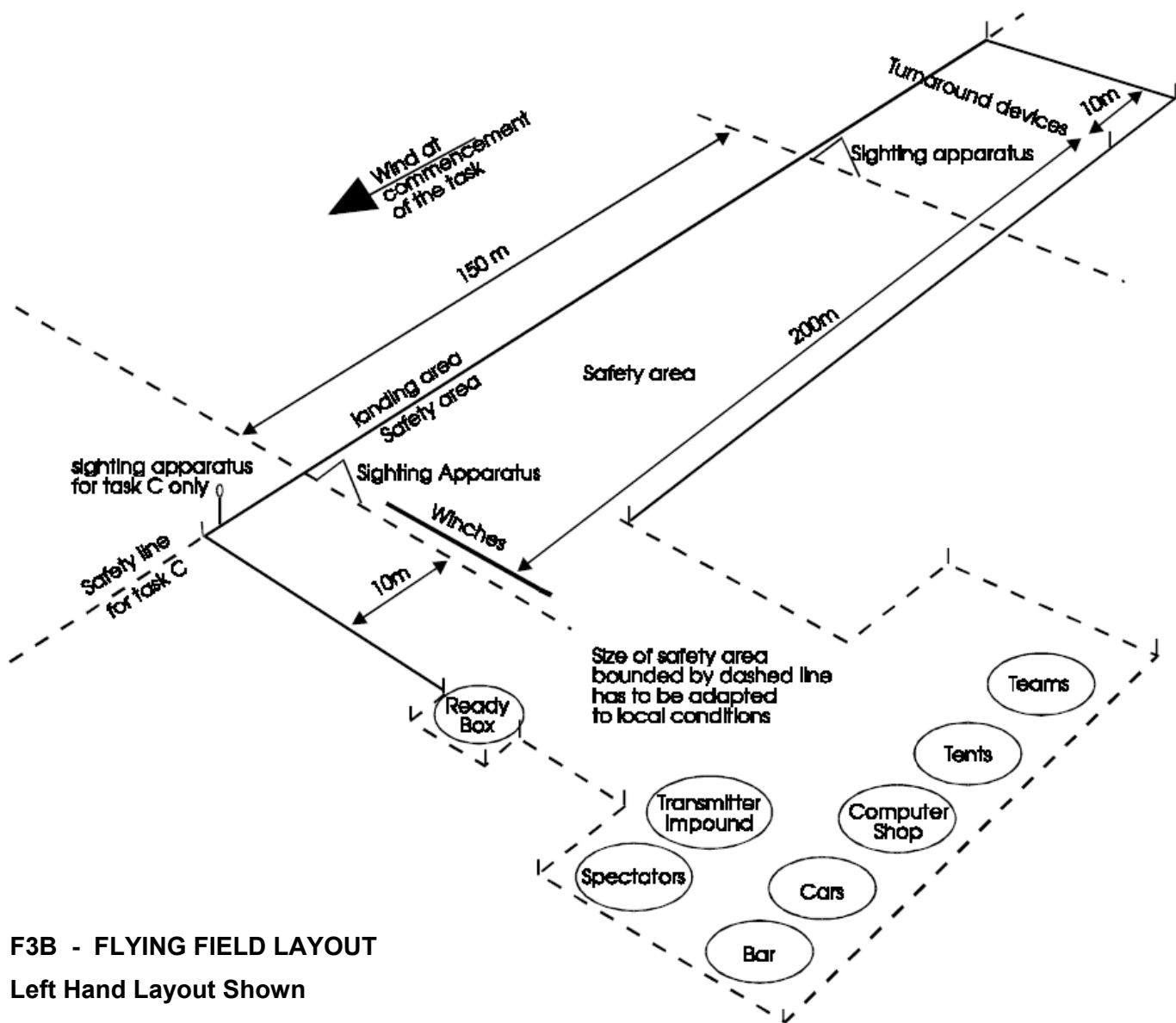
The competitor's Total Score for each round is compiled by adding the Partial Scores of all tasks.

### 5.3.2.8. Classification

If only five rounds are flown, the competitor's classification is determined by the sum of all Total Scores for each round. If more than five complete rounds are flown the lowest partial score of each task is omitted from the sum of all partial scores. To decide the winner when there is a tie, the two (or all who have the equal score) competitors will fly an additional round (three tasks).

### 5.3.2.9. Site

The competition must be held at a site having reasonably level terrain, with a reasonably low probability of slope or wave soaring.



**F3B - FLYING FIELD LAYOUT**  
 Left Hand Layout Shown

## 7.26 UK VARIATIONS ON F3B for use in the UK F3B LEAGUE

These rule variations are noted under their original F3B rule number as noted in classes 7.13 and 7.14 above. The original rules are marked within the F3B class rules \* thus \*.

(7.13)

### 5.3.1.3 Characteristics of Radio Controlled Gliders

(b) Third sentence to read:

Competitors may use more than three models at a contest. However the use of a fourth model may only be allowed if the first and second models are damaged beyond repair that is reasonable within the time available during the contest.

### 5.3.1.7 Organisation of Starts

**Delete the first paragraph and replace with:**

The competitors shall be combined in groups with a draw, in accordance with the radio frequencies used, to permit as many flights simultaneously as possible. The groups for the distance and duration tasks shall be arranged so that, as far as possible, competitors do not fly against each other more than once in each contest. However, for the A-League the groups for the distance task shall be chosen so that, as far as possible, at the end of the league year each competitor has flown against each other competitor an equal number of times.

**Delete second paragraph and replace with:**

The duration task must have a minimum of three pilots in a group. The distance task must have a minimum of two pilots in a group. The group for the speed task shall consist of all pilots.

**Delete fifth paragraph and replace with:**

Each competitor shall be given a contest flight schedule at the start of each contest. The contest shall be run in a continuous manner, in accordance with the schedule, as far as possible, without the announcement of preparation time. The start of each slot will be announced by the Contest Organiser (CO) at which time the names of the competitors shall also be announced for information purposes only. Only if the make-up of the slot is changed from that scheduled will the CO ask the competitors to confirm their readiness. If a competitor misses his slot through his own fault he shall not be entitled to a reflight. At the start of the contest, or if the contest is restarted following a break of longer than ten minutes, at least three minutes preparation time will be announced.

### 5.3.1.8 Organisation of Contests

Delete first paragraph and replace with:

Transmitter control shall comply with the requirements of Section 4b of the Sporting Code, however, the following rules shall take precedence:

- (a) Competitors shall control the operation of their own transmitters at all times.
- (b) Unless otherwise agreed with the CO, a transmitter may only be operated when the official frequency peg is fitted to the aerial. The only form of authorised transmission is when the emitted frequency corresponds with the frequency peg and the frequency shown on the flight schedule, or an alternative frequency subsequently advised by the CO.

**Delete the second paragraph**

## (7.14)

### 5.3.2.1 Definition

At the end of the paragraph commencing 'Any single round must . . .', add:

In the event of damage to a model during a round, a competitor may change to another model to complete any remaining tasks within that round.

The change of model should only be allowed if the model is damaged to such an extent that it could not be repaired to a sufficiently safe standard for it to continue in subsequent tasks in the contest.

The decision as to whether a model should be changed will be taken by the CD and at least one other competitor.

In the case of a pilot in the 'A' league, the CD and a pilot from the 'B' league will make the decision.

In the case of a pilot in the 'B' league, the CD and a pilot from the 'A' league will make the decision.

In the case of the CD, one pilot from each league will make the decision.

Only one change of model per contest will be allowed.

Once a model is substituted due to being irreparable it must take no further part in the contest.

### 5.3.2.2 Launching - General

**Delete the first paragraph and replace with :**

Electric winches shall be set up under the direction of the CO. As far as possible the CO will arrange the winch lines to be lined up with either the actual or expected wind direction. If the wind direction should change then the CO may change the winch layout, even if this occurs within a round. If, at the discretion of the CO, the winch layout is changed within a single group of the speed task then the results of that group shall be annulled and the whole group shall re-fly the task.

The layout of the bases may be changed during a contest at the discretion of the CO. Under normal circumstances the layout of the bases will only be changed if the electric winches have to be moved away from the original location of Base A.

All launches must be made by means of winches but only if each winch meets in all respects paragraph 5.3.2.2 in the FAI rule book from (a ) through to (s) Take special note of the battery specification.

Each winch must be issued with motor and battery stickers, which must be displayed on the relevant parts.

The motor the sticker must show the Amps drawn when the motor is stalled and the m ohms indicated by the test. The battery sticker must state the battery type, it's rating in ampere- hours plus the SAE, DIN, IEC/CEI or EN specified ON the battery by the manufacturer.

Both stickers must show the name of the winch owner, the date of the test, test number and be signed by the tester. A separate record of each test should be kept for future reference and checking if necessary.

**NOTE** - if more than one battery is to be used on a winch, each battery must be tested on that winch and separate tests and stickers issued in each case.

The winch test and stickers shall be valid for a maximum of two years.

**Reminder.** If any changes are made to any part of the winch within two years the winch must be re-tested.

**5.3.2.2.b.2 (c) Delete the sentence**

'The battery may not be charged on the launching line'

**5.3.2.2 Add the following paragraphs**

- (k) There must be quick release mechanisms on the power leads to the battery in order to remove power from the motor in an emergency. (Connections to the battery must be removable without the need for tools).
- (l) The power lead connections must be open ended to allow quick release from the battery.
- (m) The winch operating foot switch must be easily detachable from the winch and/or an on/off switch must be inserted into the foot switch system.

**5.3.2.3 Task A - Duration**

**(d) Add the following paragraphs**

Competitors are responsible for the fixing of the landing tape to the ground at the site of their chosen or indicated landing spot.

Competitors shall arrange for their flights to be timed by their helpers. Any person timing for a competitor shall be deemed to be a helper for that competitor. If the flight time is miss-judged by the timekeeper a zero score may be awarded. However, at the discretion of the CO, the CO's estimate of the shortest likely flight time or longest likely flight time may be awarded if the flight is miss-judged by the timekeeper.

Competitors shall be assigned landing spots under the direction of the CO.

**5.3.2.5 Task C - Speed**

**Replace (h) with the following paragraph**

- (h) During Task C the timed flight shall take place to one side of the safety line, whilst all judges/time-keepers shall remain on the other side of the safety line. The side which is to be flown shall be indicated by the organisers taking into account the direction of the sun etc. The flight is annulled if, when sighted by means of an optical aid, the safety line is crossed by any part of the model.

## **7.9.2.1 UK F3B SOARING LEAGUE**

### **7.9.2.1.1 Introduction**

Due to varying competitor entries, it is not always possible to run two leagues (A & B) simultaneously.

One main league will now be open to all competitors during the season. If there are sufficient competitors (minimum 4) requesting to fly in a B league, at the CD's discretion, a B league will be operated periodically.

A minimum of 8 (eight) are required to start a valid contest. If the numbers reduce significantly during the contest, for logistic and safety reasons the contest may be abandoned at the discretion of the CD.

NOTE. Competitors wishing to be considered for places in the team at European or World Championships must compete in the Main league.

The aim of the F3B soaring league is to encourage participation in F3B contests. There are two leagues, A and B, that fly on the same course but in separate groups. The leagues are scored independently and have their own awards. All newcomers will initially fly in the B-League to gain experience and possible promotion to the A-League which contains the highest ranking competitors. The leagues are run over a period of one calendar year having a season which typically starts in March and ends in September. The final classification of pilot's placings shall be determined at the end of the season.

Entry to BMFA F3B league events is open to all BMFA, SAA, RAFMAA and RNMAA members.

Non-members of these organisations are permitted to enter the events and have their entry count for league points on payment of five times the standard entry fee and they must also produce evidence of valid insurance cover.

At the CD's discretion, non-members of these organisations are also permitted to enter the events on payment of the standard entry fee. They must produce evidence of valid insurance cover and their scores will not count towards league points.

### **7.9.2.1.2 Contest Entry**

- (a) Competitors shall enter by pre-entry only, to be received by the Contest Organiser (CO) or any person delegated to compile the matrix by 6.00 pm Wednesday (or later at the discretion of the CO) in the week preceding the contest. All entries received after 6-00pm will invoke a double entry fee. One late entry per season/competitor will be allowed at the discretion of the matrix adjudicator. Entries not complying with these rules will be rejected.
- (b) Confirmation of entry
  - (i) Competitors wishing to receive confirmation of pre-entry shall include a SSAE.
  - (ii) Accepted entries – If requested the contest flight schedule including notification of frequencies will be returned by post or E-mail on Thursday or Friday in the week preceding the contest.
  - (iii) Rejected entries - will be returned to the sender immediately. If competitors wish to receive notification of a rejected entry in time to resubmit then they should arrange to send their entries in at least one week early. First class post can take three days from post to delivery.
- (c) Entry shall be made using a separate cheque or postal order for each contest. However, a number of competitors may group their entries together in one event

and pay using a single cheque. Entry fees shall not be refunded unless the contest is abandoned through the fault of the organisers or an entry is withdrawn before the closing date.

- (d) The rear of the cheque shall show the following information for each competitor:
  - (i) The date of the contest
  - (ii) At least TWO even frequencies (35 MHz - Channels 55 to 90) (not required for the A-League). Competitors are asked to provide more than two frequencies if possible.
  - (iii) BMFA membership number (or equivalent). Proof of suitable insurance may be provided separately if applicable.
- (e) To avoid problems in passing cheques dated more than 6 months older than the date of the contest, competitors must post-date cheques, preferably to the date of the contest.
- (f) Cheques should be made payable to BMFA.

#### **7.9.2.1.3 Definition of a League Contest Qualifying for a Final League result**

A contest qualifies for inclusion in the league scoring system if it satisfies the following requirements

- (a) A minimum of two rounds shall be completed (results shall be issued and trophies shall be awarded if a minimum of one round is completed).
- (b) A minimum of four competitors from the A-League must start the contest for it to qualify as an A-League contest.
- (c) A minimum of four competitors from the B-League must start the contest for it to qualify as an B-League contest.
- (d) The contest is flown to the current FAI F3B rules (see Classes 7.13, 7.14 plus Class **7.26, BMFA UK Variations on F3B) as amended by:**
  - (i) BMFA UK F3B Soaring League Rules (see 7.9.2.1)
  - (ii) BMFA UK F3B Soaring league Guidelines (See 7.9.2.3)
  - (iii) Any CIAM amendments to the FAI F3B rules

#### **7.9.2.1.4 League Contests Qualifying for Final League results**

- (a) Only those contests that comply with 7.9.2.1.3 shall be considered for the final classification. A competitor's final league score shall be determined by adding up the scores achieved in the league contests qualifying for the final league result as shown below:

Seven league contests	-	Best five results from seven contests
Six league contests	-	Best four results from six contests
Five league contests	-	Best four results from five contests
Four league contests	-	Best three results from four contests
Three league contests	-	Best two results from two contests
Two league contests	-	Two results from two contests
- (b) A competitor who does not compete in a league contest shall be assigned a score of 0.0 league points for that contest.
- (c) Seven league contests shall be scheduled with a single reserve date. The reserve

date shall be taken up when one of the scheduled league contests fails to meet the requirements of 7.9.2.1.3.

#### **7.9.2.1.5 League Scoring**

- (a) League results. The competitor with the highest score in each contest is assigned 100 points. the results for all other competitors in that league contest are calculated using the formula:

$$\text{Competitor's result} = \frac{\text{Competitors event score}}{\text{Event winner's score}} \times 100$$

- (b) Competitors shall obtain the permission of the CO if they wish to leave the contest before it's completion (this is to ensure that sufficient competitors are available to organise the contest in it's final stages).

#### **7.9.2.1.6 Promotion / Relegation**

- (a) The top 10% (rounded up to the nearest whole number) of the B-League competitors will be promoted to the A-League at the end of the contest year.
- (b) A-League competitors shall be relegated to the B-League in accordance with either clause 7.9.2.1.6.(c) or (d), whichever gives the greater number of competitors to be relegated.
- (c) A-League competitors who achieve less than 70% of the winning final A-League result will be relegated to the B-League at the end of the contest year.
- (d) The bottom 10% (rounded up to the nearest whole number but not less than one) of the total sum of A-League competitors shall be relegated to the B-League at the end of the contest year.
- (e) In the event of a competitor obtaining a high score at the BMFA F3B Nationals they shall be entitled to compete in the "A" League the following season.

To qualify they must be placed 1<sup>st</sup> in the case of 1 to 10 competitors scoring at The Nationals.

In the case of 11 to 15 scoring competitors the requirement is to be placed 1<sup>st</sup> or 2<sup>nd</sup>.

In the case of 16 to 20 scoring competitors the requirement is to be placed 1<sup>st</sup> 2<sup>nd</sup> or 3<sup>rd</sup> and so on as the number of competitors increases.

In addition to qualify the competitor must have also scored in 33% of valid league competitions in the same season rounded up to the nearest whole number.

I.E. in the case of 6 league competitions having been completed the qualification would be valid scores in 2 of them as would be the case in 5 or 4 valid competitions. In the event of only 3, 2 or 1 valid competitions having been completed the requirement would be to have scored in only 1 of them.

#### **7.9.2.1.7 League Qualification**

- (a) Competitors must fly in the B-League before gaining promotion to the A-League.
- (b) Competitors who have qualified for the A-League shall only compete in the A-League.
- (c) For the purposes of rule 7.9.2.1.6.(a), only those B-League competitors who have scored in two contests shall be considered.

### **7.9.2.1.8 Completion of the Contest**

- (a) The CD shall aim to complete three rounds at each contest. The contest organiser shall schedule two rounds if there are too many entrants to complete three rounds within the time allowed.
- (b) If the contest has not started by 12.30 pm then the contest shall be cancelled.
- (c) Competitive flying shall cease at 5.45 pm unless the last task of the round in progress has started in which case the round shall be completed. However, if after 5.45 pm the sum of interruptions due to any reason outside the control of the contest organiser exceeds 20 minutes the round in progress shall be abandoned.
- (d) Two rounds expected - If at any time during rounds one or two it becomes impossible to start the last task of round two by 5.45 pm then the round in progress shall be abandoned and the contest ended.
- (e) Three rounds expected - If at any time during round three it becomes impossible to start the last task by 5.45 pm then round three shall be abandoned and the contest ended.
- (f) If two (2) full rounds are completed before 4-00pm a third round shall be started at the discretion of the CD, taking into account pending weather changes, light and competitor numbers.

All tasks completed thereafter shall be scored and included in the final results. Following 5-00pm the task in progress shall be completed but no further task started.

## **7.9.2.3 UK F3B SOARING LEAGUE GUIDELINES**

### **7.9.2.3.1 Contest Schedule**

- (a) Winch testing - 9.15 am to 9.45 am
- (b) Briefing - 9.45 am
- (c) Start of first round - 10.00 am
- (d) Completion - See rule 7.9.2.1.8

### **7.9.2.3.2 Task Flying Order**

- (a) Task grouping of 'Official intensive' tasks will provide easier co-ordination of helpers and continuous flying for each category. The usual order of task, League, round will be as follows:

DUA1, DUB1, DIA1, DIA2, DIB1, DIB2, SPA1, SPA2, SPB1, SPB2, DUA2, DUB2, DUA3, DUB3, DIA3, DIB3, SPA3, SPB3

The order may be changed at the discretion of the CD depending on the circumstances.

### **7.9.2.3.3 Contest Officials**

- (a) Base A Officials shall confirm the number of legs completed corresponding to the appropriate signals by calling out as the model passes the bases i.e. "Bell-6, Bell-7" etc.

- (b) Contest Organiser (CO) - Person nominated by the SFTC for the administration of the BMFA UK F3B League.
- (c) Contest Director (CD) - Person or persons nominated by the CO to direct the contest for A-League and B-League. Typically one person shall be chosen from each league to act as CD for the league in which they are not competing.

#### **7.9.2.3.4 Winches**

- (a) Winch owners shall be responsible for the secure fixing to the ground of their winch and their turn-around pulleys.
- (b) It is each competitor's responsibility to ensure that their winch complies with the FAI F3B rules particularly rule (7.14).5.3.2.2.(b) which refers to the internal resistance of the motor.
- (c) Winch testing shall be performed by the CO or any other person nominated by the CO.
- (d) Winches will be spot tested throughout the course of each contest. Any winch owner whose winch fails to meet the requirements of rule (7.14 ) .5.3.2.2 (c) shall have their score nullified for that particular task.

#### **7.9.2.3.5 General**

- (a) All competitors will be required to help on the course at some time during the contest. A-League competitors will be required to man the course for the B-League and vice-versa. The contest will run more smoothly if competitors anticipate helping on the course and take breaks during less official intensive tasks i.e. Speed task C.
- (b) Competitors must arrange their own line retriever and timekeeper.
- (c) Competitors may be allowed one trimming flight before the briefing starts at the discretion of the CD taking in consideration the time available and the expected weather conditions. Further trimming flights may be allowed also at the discretion of the CD.

#### **7.9.2.3.6 Protests**

- (a) Any decision made by the CD may be protested in writing within 30 minutes of the decision being made. The protest is to be handed to the Jury along with a fee of twice the entry fee which will be returned if the protest is upheld.
- (b) The jury shall be nominated by the CD at the start of the contest. The jury members may be pilots of either league or an observer. If one of the Jury is directly involved in the protest then he will stand down from the Jury while the protest is being considered.
- (c) The details of all protests will be reported in BMFA F3B news.

**NOTE** - If the protest is dismissed by the Jury, the protester retains the right to take the protest direct to BMFA Council through the BMFA Competition Secretary. For details of the procedure see General Rules, Section 2, Rule 2.2.13 which is repeated as Silent Flight General Rule 7.2.11 in this rule book.

### **7.9.2.2 UK F3B TEAM SELECTION**

- (a) The selection of the three pilots to represent the UK at World and European Championships will take place in the year preceding the year of the Championships.
- (b) The pilots who achieve 1st, 2nd and 3rd places in the A-League shall be recommended to the BMFA Silent Flight Technical Committee (SFTC) for adoption as the UK F3B team. If one or more of the recommended pilots does not want to be part of the team then other A-League pilots shall be asked if they wish to take up a vacant place in the team. Pilots shall be asked in order corresponding to their final league classification, i.e. 4th place in the league is 1st reserve for the team the following year.
- (c) The team selection process shall be done every year even if there is no Championship scheduled for the following year. This is to ensure that an official team has been selected if a Championship is arranged at very short notice.

## **7.20.(5.F) F3F - RADIO CONTROLLED SLOPE SOARING (FAI Class)**

### **5.F.1. Definition**

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

### **5.F.2. Characteristics of Radio Controlled Slope Gliders**

Maximum surface area (St) ..... 150 dm<sup>2</sup>

Maximum flying mass ..... 5 kg

Loading on St ..... between 12 and 75 g/dm<sup>2</sup>

Minimum radius of fuselage nose 7.5 mm in all orientations (see F3B nose definition for measuring technique).

The radio shall be able to operate simultaneously with other equipment at the normally used spacing in the allocated R/C bands (i.e. 35 MHz : 10 kHz).

The competitor may use three models in the contest. The competitor may combine the parts of the models between the rounds provided the resulting model used for flight conforms to the rules and that the parts have been checked before the start of the contest. Addition of ballast (which must be located internally in the model) and/or change of angles of setting are allowed. Variation of geometry or area is allowed only if it is actuated at distance by radio control.

### **5.F.3. Competitor and Helpers**

The competitor must operate his radio equipment personally. Each competitor is permitted one helper. The helper is only to assist and advise the competitor until the model is passing Base A for the first time and after the timed flight is completed.

### **5.F.4. Definition of an Attempt:**

There is an attempt when the model has left the hands of the competitor or his helper.

### **5.F.5. Number of Attempts**

The competitor has one attempt on each flight. An attempt can be repeated if:

- a) the launching attempt is impeded, hindered or aborted by circumstances beyond the control of the competitor, duly witnessed by the official judges;
- b) his model collides with another model in flight or other impediment and the competitor is not to blame on that account;
- c) the flight was not judged by the fault of the judges.
- d) the model (ie the fuselage nose) fails to pass above a horizontal plane, level with the starting area, within five seconds of exiting the course, due to circumstances beyond the control of the competitor, duly witnessed by the official judges.

The re-flight shall happen as soon as possible considering the local conditions and the radio frequencies. If possible, the model aircraft can stay airborne and has to be brought to launching height, launching speed and launching position before the new 30 second period is started by the judge.

### **5.F.6. Cancellation of a Flight:**

A flight is official when an attempt is carried out, whatever result is obtained.

A flight is official but gets a zero score if:

- a) the competitor used a model not conforming to FAI rules;
- b) the model loses any part while airborne;
- c) the helper advises the competitor during the timed flight;
- d) the model is controlled by anyone other than the competitor;
- e) the flight is not carried through;
- f) the model lands outside the assigned landing area;
- g) the model is not launched within 30 seconds from the moment the starting order is given.
- h) the model (i.e. the centre of gravity) fails to pass above a horizontal plane, level with the starting area, within five seconds of exiting the course.

### **5.F.7. Organisation of Starts**

The flights are to be performed round by round. The starting order is settled by draw in accordance with the radio frequencies used.

The competitor is entitled to three minutes of preparation time from the moment he is called to the ready box. After the three minutes has elapsed, the starter may give the order to start. After the starter has given the order to start, the competitor or his helper is to launch the model within 30 seconds. The competitor or his helper is to launch the model by hand from the starting area indicated by the organiser.

If possible, the starting area, including the audio system, shall be situated in the middle of the course (equal distance from Base A and Base B).

The time from launch to the moment the model enters the speed course must not exceed thirty seconds.

If the model has not entered the speed course (i.e. first crossing of Base A in the direction of Base B) within the thirty seconds, the flight time will commence the moment the thirty seconds expires. If the model has not entered the speed course within the thirty seconds, this is to be announced by the judges.

### **5.F.8. The Flying Task**

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

### **5.F.9. The Speed Course**

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

Depending on the circumstances, the two planes are marked respectively Base A and Base B.

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

### **5.F.10. Safety**

The organiser must clearly mark a safety line representing a vertical plane which separates the speed course from the area where judges, other officials, competitors and spectators stay. Crossing the safety line by any part of the model aircraft during the measured flight will be penalised by 100 points subtracted from the sum after conversion, the penalty not being discarded with the result of the round. The organiser must appoint one judge to observe, using an optical sighting device, any crossing of the safety line.

### **5.F.11. Judging**

The flights are judged by two judges who do not have to be the same for all competitors. The judges' task is to control that the flights are performed according to the rules, to be time keepers and to ensure that the right distance is flown.

### **5.F.12. Scoring**

The result of the flight is stated as the time in seconds and hundredths of seconds obtained by each competitor. For the purpose of calculating the result of the round, the competitor's result is converted this way:

$$1000 \times \frac{P_w}{P}$$

where  $P_w$  is the best result in the round, and  $P$  is the competitor's result.

### **5.F.13. Classification**

The sum of the competitor's round scores will determine his position in the final classification. If more than three rounds were flown the lowest round score of each competitor will be discarded and the others added to obtain the final score which will determine his position in the final classification. If more than fourteen rounds were flown, the two lowest round scores will be discarded.

To avoid ties in the classification concerning the five best scores, "classification rounds" are flown until the ties are broken. If this is not possible, the result of the discarded round will determine each competitor's position in the final classification.

### **5.F.14. Organisation of the Contest**

The competition must be held at a site which is suitable for slope soaring.

When marking the starting and landing areas and the turning planes, the organiser must take into account the configuration of the terrain and the wind direction.

### **5.F.15. Changes**

Any changes in the flight and landing areas may be made only between flight rounds.

### **5.F.16. Interruptions**

A round in progress must temporarily be interrupted if:-

- a) the wind speed constantly is below 3 m/sec or more than 25 m/sec.
- b) the direction of the wind constantly deviates more than 45° from a line perpendicular to the main direction of the speed course. If these conditions arise during the flight the competitor is entitled to a re-flight.

A round in progress is to be cancelled if:

- a) the interruption lasts more than thirty minutes;
- b) fewer than 50% of the competitors have been able to perform the task caused by marginal conditions. Without the condition "constantly" (i.e. 20 seconds) have been met and thus caused re-flights.

## **7.9.3.1 BMFA F3F SOARING LEAGUE GUIDELINES**

### **7.9.3.1.1 Introduction**

- (a) The aim of the F3F Soaring League is to encourage participation in F3F contest and to provide a league structure consisting of high quality contests for F3F enthusiasts.
- (b) F3F racing class is governed by rules contained within section 7.20 of this rule book. These additional notes are guidelines considered to be 'best practice' for the organisation of the BMFA F3F Slope Racing League.
- (c) The BMFA F3F League is executed under the remit of the BMFA Silent Flight Technical Committee who from time to time may delegate responsibility for running of this league to an individual League Co-ordinator, group of co-ordinators or BMFA Specialist Body as applicable. In the event that a group is accountable, one person will be elected to act as liaison to the Technical Committee and shall be known as the BMFA F3F League Co-ordinator.

### **7.9.3.1.2 Contest Entry**

- (a) Competitors shall pre-enter the events for the event by 10pm on the Wednesday evening before the competition.
- (b) Pre-entry details shall consist of - Pilot's name, at least two legal frequencies, BMFA membership number or other proof of suitable insurance cover as required.
- (c) Competitors do not need to pay any entry fees until the morning of the competition.
- (d) Entry to any BMFA F3F league event is open to all BMFA, SAA, RAFMAA and RNMAA members and they will be required to demonstrate membership of said organisations to the contest director at the time of pre-entry.

At the CD's discretion, non-members of these organisations are also permitted to enter the events at the standard entry fee. They must produce evidence of valid insurance cover and their scores will not count towards league points.

### **7.9.3.1.3 Definition of a League Contest**

A contest qualifies for inclusion in the league scoring system if it satisfies the following requirements:

- (a) A minimum of three rounds must be completed.
- (b) A minimum of six competitors shall start the contest.

(c) The contest is flown to current FAI F3F rules (local conditions permitting).

#### **7.9.3.1.4 League Contests Schedule**

A competitor's final league score shall be determined by adding up the 'normalised' scores achieved in completed league contests.

A minimum of 6 events and a maximum of eight events will be scheduled at the start of the year by the co-ordinator(s) as referred to in 7.9.3.1.1. . A competitors final league result being determined as follows:

Eight league contests completed	-	Best five results count
Seven league contests completed	-	Best four results count
Six league contests completed	-	Best four results count
Five league contests completed	-	Best four results count
Four league contests completed	-	Best three results count
Three league contests completed	-	Best two results count
Two league contests completed	-	Both results count

#### **7.9.3.1.5 League Scoring**

(a) Only completed rounds shall be scored.

(b) League results.

The competitor with the highest score in each contest is assigned 1000 points. the results for all other competitors in that league contest are calculated or 'normalised' using the formula:

$$\text{Competitor's result} = \frac{\text{Competitor's event score}}{\text{Event winner's score}} \times 100$$

#### **7.9.3.1.6 Suitability of Flying Sites**

Contests shall only be scheduled at slopes where model flying and frequency control is under the full control of the hosting organisation and undertaken with the full permission and knowledge of the land owners where applicable. At least one member of the hosting organisation must be present to advise on selection of the suitable slope, liaison with local fliers, local rules and any problems arising throughout the duration of the race. Special attention must be given to the following points:

- (i) National coverage
- (ii) Variety of flying conditions, between events.
- (iii) Areas that can offer strong consistent conditions and greater options for various wind directions.
- (iv) Suitability for siting bases 100m apart and offering a clear view of the expected flight line.
- (v) Local Rules.

Additionally - Siting of the competition course should allow racing flight to be achieved in the area of maximum compression or the 'accepted' safe racing line if prior knowledge of the slope and racing at the venue is established. If possible the turn judges and their

sighting devices should be set back a reasonable distance from the racing line but always in a manner where they can reasonably be expected to witness the whole flight of the model. However, the competitor always carries the responsibility of presenting his model to the turn judges in order for them to acknowledge the turn or entry/exit to/from the course.

#### **7.9.3.1.7 Safety Area**

The use of a safety 'line' is noted in the full FAI rules at 7.20.10. However in addition to this a safety 'area' shall be established a safe distance away from the flight line in which all competitors and spectators shall remain until being called to fly.

- (a) A competitor who flies his model over the safety area whilst racing or subsequently in a manner encroaching the safety area at any other time will be penalised 100 points.
- (b) A competitor whose model comes to rest within the safety area shall be penalised by losing his score for that round.

#### **7.9.3.1.8 Timetable**

- (i) Briefing - 9:15 am
- (ii) Start of first round - As soon as possible following briefing
- (iii) Completion - As follows:
  - (a) If the contest has not started by 12.30 pm, then the event will be cancelled, unless the CD believes that a league result (min 3 Rounds) can be obtained in the remaining time.
  - (b) The final contest flight will start before 6.00pm.
  - (c) The final round will be scheduled to allow as many rounds as possible to be flown

#### **7.9.3.1.9 Contest Progress**

- (a) Pilots should clear the course as soon as their flight is completed, unless they have the CD's express permission to do otherwise.
- (b) A competitor allowing his model to re-enter the course without the CD's express permission will be penalised 100 points.
- (c) A competitor flying his model in an area or manner which is considered by the CD to impede a following competitor, will be penalised 100 points.
- (d) Pilots should land their models as soon as possible after completing their contest flight. Prolonged periods of aerobatics, model trimming, high energy passes, dynamic soaring or similar whilst preparing to land, will in the first instance incur a warning from the CD. Any further infringement will incur a 100 point penalty.

## **7.28 SIXTY INCH R/C SLOPE PYLON RACING**

### **7.28.1 Objective**

To provide a slope racing class suitable for open events.

### **7.28.2 Models**

- (a) Models shall have a maximum wingspan of 60 inches (1524 mm).
- (b) In all other respects they shall conform to FAI specifications (i.e. 7.5 mm nose radius, maximum wing loading 75 gms / dm<sup>2</sup>). Change of wingspan during flight is not allowed and all ballast must be securely fixed.

### **7.28.3 Frequencies**

Pilots will provide two frequencies, preferably three, and must be prepared to change frequency at the request of the CD. In the event of a clash of frequencies beyond the qualifying rounds the person with the highest number of points from the qualifying rounds will be given preference in choosing frequencies.

### **7.28.4 The Course**

- (a) The course will be 80 metres in length, substantially parallel to the edge of the slope with pairs of sighting poles set at 90° to the line of the course used to define the turn lines.
- (b) The pylons at the turn points will be designated Base A and Base B.
- (c) One lap consists of two legs, Base A to Base B and back.

### **7.28.5 Competitors, Helpers and Officials**

- (a) Pilots shall stand behind Base A.
- (b) Flag men (one for each pilot in the race) will stand behind Base B.
- (c) If manual calling is used (7.28.6.1), callers will stand with their pilots.
- (d) If radio calling is used (7.28.6.2), marshals (one for each pilot in the race) will stand behind Base A.

### **7.28.6 Identification and Signalling**

#### **7.28.6.1 Manual Calling**

- (a) Each pilot will have a caller. Callers will tell the pilots when the Base B flag for their model is raised and call out the number of laps.
- (b) Each model in a race will be allocated a colour code and will be identified to its appropriate flag man at base B before the launch phase commences.
- (c) Signalling of turns at Base B will be by the raising of the appropriate coloured flag as the model passes Base B from Base A in the direction of leaving the course.
- (d) Pilots will judge their own turns at base A.
- (e) Callers will inform pilots of any cuts.

#### **7.28.6.2 Radio Calling**

Subject to suitable radio equipment being available, the CD may require that the following calling system is used.

- (a) Each pilot will wear a hard hat equipped with a head mounted transceiver (supplied by the race organisers). Pilot's will not have a caller.
- (b) Each model in a race will be allocated a colour code and will be identified to its appropriate flag man at base B before the launch phase commences. Each flag man shall be equipped with a transceiver on the same frequency as the pilot and shall confirm recognition of the model verbally via the headset. The pilot shall confirm to the CD that the identification procedure is complete.
- (c) Signalling of turns at Base B will be by the flagman pressing the tone button of his transceiver as the model passes Base B from Base A in the direction of leaving the course. If the model cuts the turn, the flag man shall immediately;
  - (i) raise his flag and keep it raised until the turn has been completed correctly
  - (ii) transmit the word 'cut' using his transceiver

No other communication between the pilot and the flag man is allowed.
- (d) Pilots will judge their own turns at base A.
- (e) Marshals at Base A will inform the pilots of any cuts there by raising the appropriate flag and keeping it raised until the turn has been completed correctly. They will also call out the number of laps completed.

### **7.28.7 Launching and Start**

- (a) The pilot or a helper may launch the model.
- (b) Launching will occur only in the launch period which will last for thirty seconds. Thirty seconds advanced warning of this launch period shall be given with a countdown being given at five second intervals (i.e. 30, 25, 20, ..... launch)
- (c) At the end of the launch period ten seconds will elapse before the start of the race. A verbal countdown will be given from ten down to zero at one second intervals.
- (d) On the call of zero the marshals at Base A start their watches and the race starts.
- (e) Any glider that enters the course towards base B from Base A before zero will be flagged by the marshal at Base A and must be made to leave the course and re-enter and the flag shall be kept raised until the model has started correctly. The CD shall inform pilots if they have started falsely.

### **7.28.8 Timing**

- (a) During the qualifying rounds, the flight time of each model shall be timed by the appropriate marshal at Base A.
- (b) Any model hitting the sighting apparatus shall receive a 'did not finish' classification for that race.

### **7.28.9 Qualifying Rounds**

- (a) At least two qualifying rounds shall be flown. They shall be preferably four but at least three pilots in each heat. Qualifying rounds shall be ten laps (20 legs)
- (b) If three or more qualifying rounds are flown then the worse round result of each pilot shall be discarded.
- (b) The heat matrix will be arranged so that there is as much variety of pilot combinations and as few instances of pilots flying against each other more than once as possible.

(c) Points will be allocated as follows:

First place - 1,000 points

Other places -  $\frac{\text{First place time}}{\text{Other place time}} \times 1,000$  points

Did not finish - 0 points

### **7.28.10 Finals**

The top eight pilots from the qualifying rounds will compete in A and B finals as follows;

B Final - 5th, 6th, 7th and 8th placed qualifiers

A Final - 1st, 2nd, 3rd and 4th placed qualifiers

Finals will be fifteen laps (30 legs)

### **7.28.11 Reflights**

- (a) A reflight shall be granted if a pilot is miss-signalled during a race. During the qualifying rounds such a reflight will be fitted into the race matrix at the most convenient point but if this is not possible then the original race must be reflowed.
- (b) If this is the case then the result of the reflowed race will be used to calculate the score of the pilot granted the reflight. The better of their two results will be used for the other pilots' scores.
- (c) Miss-signalling during the finals shall result in the race being abandoned and restarted.
- (d) A mid-air collision is not grounds for a reflight.

### **7.28.12 Safety**

- (a) Safety areas and local safety rules will be defined by the CD on the day.
- (b) All personnel situated in areas close to the flightpath of the models must wear hard hats (i.e. pilots, callers, flagmen, officials etc.).

## **7.29 CLUBMAN'S SIXTY INCH R/C SLOPE RACING**

### **7.29.1 Objective**

To provide a slope racing class based Sixty Inch Slope Racing but simplified and suitable for club events.

### **7.29.2 Models**

As Sixty Inch R/C Slope Racing ( 7.28.2 Models)

### **7.29.3 Frequencies**

Pilots will provide at least two frequencies and must be prepared to change frequency at the request of the CD.

#### **7.29.4 The Course**

As Sixty Inch R/C Slope Racing ( 7.28.4 The Course)

#### **7.29.5 Competitors, Helpers and Officials**

- (a) Pilots shall stand behind Base A.
- (b) Each pilot will have a caller. Callers will tell the pilots when the Base B flag for their model is raised and call out the number of laps.
- (c) Flag men will stand behind Base B.

#### **7.29.6 Identification and Signalling**

As Sixty Inch R/C Slope Racing ( 7.28.6.2 Manual Calling)

#### **7.29.7 Launching and Start**

- (a) Pilots or their helper/caller may launch the model.
- (b) Launching will occur in the launch period which will last for thirty seconds. The Contest Director (CD) will count the period upwards in ten second intervals (i.e. 10, 20, 30)
- (c) At the end of the launch period thirty seconds of height gain period will commence. The CD will count down this period in ten second intervals for twenty seconds and one second intervals for the final ten seconds (i.e. 20, 10, 9, 8, etc.).
- (d) When the height gain period ends, the race starts.
- (e) Any glider that enters the course towards base B from Base A before zero must be made to leave the course and re-enter. The CD shall inform pilots if they have started falsely.

#### **7.29.8 Heats and Finals**

- (a) The CD will endeavour to run as many four man heats as possible. If it is not possible to run four man heats, three man heats will be matrixed.
- (b) Heats will be arranged so that there is as much variety of pilot combinations and as few instances of pilots flying against each other more than once as possible.
- (c) Points will be allocated as follows:
  - First - One point                      Second - Two points                      Third - Three points
  - Fourth - Four points                      No finish - Five points
- (d) After a minimum of two rounds of qualifying a seeding list may be generated. Lowest scores are given the highest positions.
- (e) the seeding list will generate the personnel taking part in the finals. Positions in the finals will be allocated as follows:
  - 1 - 4 A Final                      5 - 8 B Final                      9 - 12 C Final                      etc.
- (f) Finals will be flown in reverse order, finishing with the A Final.
- (g) Heats will be ten laps and finals will be fifteen laps. One lap consists of two legs, Base A to Base B and back.

#### **7.29.9 Safety**

As Sixty Inch R/C Slope Racing ( 7.2812 Safety)

## **7.32 SIXTY INCH EPP R/C SLOPE PYLON RACING**

### **7.32.1 Objective**

To provide a slope racing class using models with 'soft' EPP foam construction airframes and based on the original Sixty Inch Slope Racing concept.

### **7.32.2 Definitions**

- (a) Centre Section  
the portion of the wing extending up to 3 inches either side of the centre-line.
- (b) D-Box  
the portion of a wing panel from the extreme leading edge to the 25% chord line.
- (c) EPP  
any foam which returns to its previous state following a moderate deformation. Note: at the time of writing this only includes genuine EPP foam but the definition may change as new materials become available.
- (d) Deformable Foam  
foams which deform on impact (not necessarily resiliently) examples: blue or white foam, EPP or similar man-made material.
- (e) Soft Covering  
Flexible covering material which can be deformed but will return to its original shape without damage or permanent deformation. e.g. Heatshrink film, cross weave tape, vinyl tape. The following are not included: ply, balsa, plasticard, mylar, epoxy and polyester resins, varnishes, PVA (or similar) soaked paper.
- (f) Flexible Adhesive  
any adhesive tape, spray or paint which dries to a flexible state. Examples: double-sided tape, 3M 77, Spraymount, Copydex. The following are \*not\* included: epoxy and polyester resins, varnishes.
- (g) Secondary Flying Surface  
flying surface other than the wing. e.g. fin, tailplane, canard.

### **7.32.3 Model Specifications**

#### **7.32.3.1 General**

Models shall have a maximum wingspan of 60 inches (1524 mm).

#### **7.32.3.2 Wing Structure**

- (a) Any material may be used in the Centre Section (note the EPP nose rule (7.32.2.3.(c)) must be observed for flying wings).
- (b) The D-Box of each wing panel must be constructed from EPP except at Centre Section, Spars and Ballast (subject to 7.31.3.5). No local reinforcement of the leading edge is permitted.
- (c) The portion of the wing between the D-Box and the trailing edge or false trailing edge must be constructed from Deformable Foam except at the Centre Section and the Spars.
- (d) Spars: no restrictions.

- (e) Control surfaces: no restrictions.
- (f) The entire structure may be covered using a Soft Covering only and bonded using a Soft Adhesive only. No other materials may be used to sheath the structure.

### **7.32.3.3 Fuselage**

- (a) A 'cladding section' is defined for the fuselage. All exposed areas within the cladding section must be clad using EPP, to a minimum thickness of 1/4 inch at every point, except in the area of the Longerons (7.32.3.3.(b)). The cladding section extends from the nose to 5 inches forward of the rear of the fuselage. For models with tail surfaces, the rear of the fuselage is taken as the location of the leading edge of the rear-most tail surface.

Example 1:

On a model with tailplane and fin, with the fin behind the tailplane, the cladding must extend from the nose to five inches forward of the leading edge of the fin.

Example 2:

On a model with a fin supported by a short boom, and no tailplane. If the section of boom between the wing and the leading edge of the fin is less than 5 inches, the boom does not require any EPP cladding at all.

- (b) Longerons are permitted for stiffening the fuselage. They may be embedded in the outer EPP layer but must not protrude beyond the outer surface. Longerons may be used to support local strengthening members e.g. ballast- and wing-mounting plates. They must be regular (e.g. square, round) in section. For safety reasons the forward end of each longeron must be located at least 2 1/2 inches from the nose of the model.
- (c) The section of the fuselage from the tip of the nose to 1.5 inches back must be solid EPP.
- (d) External reinforcement is permitted for wing and tailplane fixing e.g. to provide support for wing dowels.
- (e) The entire structure may be covered in a Soft Covering only, bonded using a Soft Adhesive only. No other materials may be used for covering.

### **7.32.3.4 Secondary flying surfaces.**

- (a) The following materials are permitted in the construction of the secondary surface: balsa, correx, deformable foam. No other material may be used in the structure except for local reinforcement.
- (b) Soft Coverings may be used, bonded using a Soft Adhesive.
- (c) Control surfaces: as 7.32.2.2.(b).

### **7.32.3.5 Ballast**

Ballast and balance weight must be mounted internally. If mounted in the wing, no part of the ballast or enclosing tube may lie forward of the 15% or 1.5 inch chord line, whichever is the lesser. Note: the pilot is responsible for ensuring that any ballast carried is within the structural limits of the model.

### **7.32.4 The Course**

- (a) The recommended length of the course shall be 70 m. 10 laps (20 legs) shall be flown to give a total race distance of 1400 m.

- (b) The length of the course may be varied at the CD's discretion, with the agreement of the competitors. If the course length is changed, the CD may also optionally alter the number of laps flown to restore the total distance travelled to 1400 m.

## **7.32.5 Flying Rules**

### **7.32.5.1 Launching**

- (a) The CD shall call out the start of the thirty second launch period, during which time the models may be launched and the pilots attempt to gain height.
- (b) A countdown will be given during the launch period at ten second intervals for the first twenty seconds, and at one second intervals for the last ten seconds.
- (c) Relaunches are not allowed after the end of the launch period.
- (d) After thirty seconds have elapsed and not before, the models may cross Base A in the direction of Base B to start the race.

### **7.32.5.2 Penalties**

- (a) A zero score shall be given to any pilot colliding with another model as a result of deliberate intent. A second infringement will result in disqualification.
- (b) The CD shall establish a safety line and announce it at the pilot's meeting. This line will generally be a straight line between the front pole of bases A and B, but can be altered by the CD to suit local conditions and announced at the pilots meeting.
- (c) A pilot crossing the safety line between the bases will be issued one warning per each race. Any pilot crossing the line twice in the same race will be awarded a zero for that race and instructed to land immediately.
- (d) Any pilot crossing bases A or B behind the safety line will be immediately awarded a zero for that race and asked to land immediately.

### **7.32.5.3 Scoring**

In each event, the pilot's overall score is decided partly by the heats and partly by a knockout-tournament.

### **7.32.5.4 Heats**

- (a) The winner in each heat gets N points for a first, N-1 for a second, N-2 for a third and so on, where  $N = (\text{max number of flyers per heat})$ . For example, if the heats are run with a maximum of four flyers, the winner of each heat receives four points, irrespective of whether two, three or four flyers compete in that particular heat.
- (b) Failure to finish receives a zero.
- (c) At the end of the heats, the scores of each pilot are added, and the flyer with the most points is awarded 50 league points, second place gets 49, third gets 48 and so on.

## **7.32.6 Knockout Tournament**

- (a) The knockout tournament is also worth 50 points, and is seeded on the basis of the heats so that the top flyers in the heats do not meet until the final.
- (b) The maximum league points per event is therefore 100 points for winning both the heats and the final.

- (c) In each race of the tournament one pilot from a race of two, two pilots from a race of three or two pilots from a race of four advance to the next round.
- (d) If the required number of aircraft for advancement do not finish the race, advancement to the next round will be awarded to the aircraft that travels the furthest distance on the course but did not complete the course.
- (e) In the final race of the tournament, finishing position will be awarded to any aircraft not completing the course by total distance travelled on the course.
- (f) The first round of the tournament will consist of 10 laps and in each subsequent round of the tournament the laps will be increased by 5 to a maximum of 25.
- (g) An alternative method of running the tournament can be used if time or local conditions require it to be run quickly. This should ONLY be used if, in the CD's opinion, the full tournament can not be completed. Two pilots are selected by random draw and fly 10 laps as a two man heat. The winner of that race then flies the next pilot (selected by random draw). This continues through the entry list until all pilots have raced. The losing pilot from each race is eliminated from the tournament. All races are 10 laps and the winner of the race involving the final pilot from the entry list is the tournament winner. Finishing order and points are awarded based on when each pilot is eliminated (based on 50 points maximum and reducing by one full point for each finishing position).
- (h) If the tournament must be abandoned for any reason prior to the launching of aircraft in the final race, finishing order for the event will be determined by the results of the heats only and scores will be based on doubling the heat score (based on 50 points maximum) to the standard 100 maximum for the event.

### **7.32.7 UK 60" EPP SOARING LEAGUE**

- (a) The league shall be conducted on a calendar year basis and consist of at least three scheduled events on at least two different venues.
- (b) At least 2 events must be flown and counted to have a league in any calendar year.
- (c) League standing shall be the total points scored in each league event minus a set number of discards.
- (d) Depending on the number of events flown in a calendar year, each pilot will be able to discard their lowest score(s). Scores counted towards the league shall be: two from three, three from four, four from five, four from six, five from seven, six from eight.

## **7.21. F3H - R/C SOARING CROSS COUNTRY RACING (FAI Class)**

### **5.H.1. Rules for Entry**

- a) Open to any country affiliated with the FAI member National Airports Control.
- b) Each National Airports Control may enter up to two teams. A team consists of a pilot and up to two helpers, all of whom must be in possession of an FAI Sporting Licence, from their National Airports Control.
- c) Each team shall include one timer who will be assigned by the organisers as official timer for another team. The official timer shall also be responsible to certify distance travelled if less than the full course distance.
- d) Each team may enter any number of gliders. Each glider must be flown on the same assigned frequency.
- e) There is no restriction on the type or number of chase ground vehicles. Suitable space must be provided in one of the vehicles for the official timer.
- f) All gliders shall fall within FAI limitations with regard to size and weight. (Refer to 5.3.1.3., Characteristics of Radio Controlled Gliders).
- g) There is no restriction on the number of controls or sensors.
- h) All ballast must be carried internally and cannot be jettisonable except for water ballast.
- i) All gliders shall bear the FAI Sporting Licence number and national flag of the primary flyer.

### **5.H. 2. Description of Task**

- a) Object is to fly the course non-stop with one model. Fastest time wins. Any pilot of the team may fly the model.
- b) If all flights are less than the course length then the longest distance flown wins. In the case of ties, the shortest time will determine the winner.

### **5.H. 3. Description of Course**

- a) Depending on local conditions, the course may be any of the following:
  - 1) Point A to Point B, (distance to a goal);
  - 2) Point A to Point B to Point C, (broken leg distance to a goal);
  - 3) Point A to Point B and return to Point A, (out and return);
  - 4) Distance around a closed course with three or more turn points (triangle, quadrilateral etc.);
  - 5) Free distance
- b) On the days of the competition, the organiser shall define the nature and length of the course to be consistent with the local wind and weather conditions which exist and/or are forecast for that day.
- c) The exact nature and length of the course will be announced by the organiser at a pilots' briefing held on the day of the event. A different task may be used on each day of a multi-day competition.
- d) Minimum course length for a World Championship event shall be 20 km. A World Championship event shall include at least three days of official flying.
- e) It is the responsibility of the organiser to provide sight gates and observers at the

turn points, if any.

#### **5.H.4. Launching**

- a) All launching shall be by electric winches which shall be set-up and remain in a launch area designated by the organiser.
- b) Winches may be supplied by the organiser or may be supplied by the teams.
- c) Winches will be 12-volt launch systems with a maximum line length of 600 metres with the turnaround located 300 metres from the winch.
- d) The towline must be equipped with a pennant having a minimum area of 5 dm<sup>2</sup> (77.5 in<sup>2</sup>) A parachute (5 dm<sup>2</sup>) may be substituted for the pennant provided it is not attached to the model and remains inactive until the release of the cable.
- e) More than one team may share the use of the same winch.
- f) Each team will provide and is responsible for its own line retrieval.
- g) To prevent lines from fouling on the ground, immediately after release from the glider, every towline must be wound down to the turnaround. Failure to do so will allow the organiser to add a five minute time penalty to the flight time.

#### **5.H.5. Flight Rules**

- a) All launching sequences shall be at each team's discretion.
- b) Re-launches on the course are not permitted.
- c) Flight time for each attempt will begin only when the glider crosses the start line in the direction of the course. Prior to crossing the start line, the pilot is responsible to inform the officials that he is making a start. Flight time stops when any of the following occurs:
  - 1) the glider crosses the finish line; or
  - 2) the pilot declares the glider is lost; or
  - 3) the glider touches the ground.
- d) A team may change planes with no restrictions other than the initially assigned frequency must be used.
- e) Any number of attempts will be allowed within the contest time period; the best flight each day will be used in the final scoring.
- f) Once on the course the chase vehicle(s) must travel the designated route except for possible off-course retrievals.
- g) The glider need not fly directly over the prescribed route.
- h) In the event of off-course landings (less than full course length) the point of landing shall determine the distance flown.
- i) If the glider is destroyed in flight or goes out of sight for a period of not less than five minutes, the official timer will log its point of furthest progress up to that point.

#### **5.H.6. Scoring**

- a) The winner of each task shall receive 1000 points.
  - 1) Except for Free Distance, the fastest finisher is the winner of the task. If there are no finishers, the winner is the team which flew the longest distance.

- 2) In Free Distance, the winner is the team which makes the longest distance flight.
- b) When a team lands off course, an imaginary perpendicular line from the course to the landing spot shall determine the distance flown. A marker shall be placed by the official timer at the projected point on the course.

c) Score Computations:

- (1) If there is a finisher:

Fastest finishing team's score = 1,000

Other finishing team's score =  $700 + \left(\frac{T_i}{T_w} \times 300\right)$

Non-finishing team's score =

Where:-

$T_i$  = team's time to finish course.  $T_w$  = fastest time to finish course.  
 $D_i$  = team's distance flown.  $D_w$  = distance of the task.

- (2) If there are no finishers, each team receives a score as below:

Longest distance flight = 1,000 points.

All other scores =  $1,000 \times \frac{D_i}{D_w}$

Where:-

$D_i$  = team's distance flown.  $D_w$  = longest distance flown.

- (3) The overall winner shall be determined by adding together all the daily scores.

### 5.H.7. Organiser Responsibility

- a) Provide sufficient personnel to ensure that all rules are observed and that the correct distances are measured.
- b) Control all frequencies assigned to the competing teams to ensure that each team has a clear frequency.
- c) Provide a map to each team describing the course area and pertinent features at least one month prior to the start of the event.

## 7.3.(5.6) R/C THERMAL DURATION GLIDERS - FAI CLASS F3J (FAI Class)

NOTE - Those rules marked \* . . . \* are modified in class 7.4, UK Variations on class F3J for use in the UK.

### Object

To provide a man-on-man contest for competitors flying radio-controlled thermal duration soaring gliders. In the contest, several qualifying rounds are flown. For each qualifying round, competitors are divided into groups. The scores in each group are normalised to give them meaningful scores irrespective of changing weather conditions during a round. The competitors with the top aggregate scores in the qualifying rounds then fly at least two further fly-off rounds as a single group to determine the final placing. The scheduled number of fly-off rounds shall be announced by the Contest Director before the start of the contest.

### 5.6.1. General Rules

#### 5.6.1.1. Definition of a Radio Controlled Glider

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. Model aircraft with variable geometry or area must comply with the specification when the surfaces are in maximum and minimum extended mode. The model aircraft must be controlled by the competitor on the ground using radio control. Any variation of geometry or area must be actuated at distance by radio.

#### 5.6.1.2. Prefabrication of the Model aircraft

Paragraph B.3.1. of Section 4, Part 2 (builder of the model aircraft) is not applicable to this class.

#### 5.6.1.3. Characteristics of Radio Controlled Gliders

- a) Maximum Surface Area ..... 150 dm<sup>2</sup>  
Maximum Flying Mass .....5 kg  
Loading ..... 12 to 75 g/dm<sup>2</sup>  
Minimum radius of fuselage nose .....7.5 mm
- b) The radio shall be able to operate simultaneously with other equipment at 10 kHz spacing below 50 MHz and at 20 kHz spacing above 50 MHz. When the radio does not meet this requirement, the working bandwidth (max. 50 kHz) shall be specified by the competitor.
- c) Any device for the transmission of information from the model aircraft to the competitor is prohibited. Any use of telecommunication devices (including transceivers and telephones) in the field by competitors, helpers or team managers is not allowed.
- d) The competitor may use three model aircraft in the contest.
- e) The competitor may combine the parts of the model aircraft during the contest, provided the resulting model aircraft conforms to the rules and the parts have been checked before the start of the contest.
- f) For the sake of randomness of the starting order among the successive rounds, each competitor must enter three different transmitter frequencies with 10 kHz

minimum spacing. The organiser is entitled to use any of these three frequencies for setting the flight matrices. Once the competitor is given one of these three frequencies he must not change to another frequency for all flights during the whole of the preliminary rounds other than for reflights. In case of a reflight the competitor can be called to use either of these three frequencies for this reflight only, as long as the call is made at least 1/2 hour prior to the beginning of the reflight in written form to the competitor (or team manager when applicable).

- g) All ballast must be carried internally and fastened securely within the airframe.
- h) No fixed or retractable arresting device (i.e. bolt, saw tooth-like protuberance, etc) is allowed to slow down the model aircraft on the ground during landing. The underside of the model aircraft must not have any protuberances other than the tow hook and surface control linkages (with or without fairings). The tow hook must not be larger than 5 mm in frontal width and 15 mm frontal height.

#### **5.6.1.4. Competitors and Helpers**

- a) The competitor must operate his radio equipment himself.
- b) Each competitor is allowed three helpers. When a team manager is required, he is also permitted to help the competitor. A maximum of two helpers are permitted for towing during the launch as described in 5.6.8.2.

#### **5.6.2. The Flying Site**

**5.6.2.1.** The competition must be held on a site having reasonably level terrain, which will minimise the possibility of slope and wave soaring.

#### **5.6.2.2.**

- a) The flying site shall include a marked launch corridor of 6 m width with a central launch line. The launching corridor shall be arranged crosswind and shall include launch marks on the central launch line at least 15 m apart, one for each competitor of a group.
- b) The flying site shall include landing spots, one for each competitor in a group. Each landing spot will correspond to one of the launching marks and will be arranged at least 30 m downwind of the launching corridor.

**5.6.2.3.** The centres of the landing circles and the launch line must always be marked. At the discretion of the Contest Director, marks indicating the circumference of the circles may be omitted and replaced by the use of other means of measuring, such as a tape, to check distances from the centre of the circles.

#### **5.6.2.4. Safety Rules**

- a) No part of the model aircraft must land or come to rest within the safety area.
- b) The model aircraft must not be flown at low level (below 3 meters) over the safety area.
- c) Every single action against the safety rules will be penalised by deduction of 100 points from the competitor's final score. Penalties shall be listed on the score sheet of the round in which the infringement(s) occurred.

#### **5.6.3. Contest Flights**

#### **5.6.3.1.**

- a) The competitor will be allowed a minimum of five (5), preferably more, official

flights.

- b) The competitor will be allowed two attempts at each official flight.
- c) There is an official attempt when the model aircraft has left the hands of the competitor or those of a helper under the pull of the towline.
- d) In the case of a second attempt the result of that flight will be the official score.
- e) All attempts are to be timed by two stopwatches. If no official time has been recorded, the competitor is entitled to a new working time according to the priorities mentioned in paragraph 5.6.4.

#### **5.6.4. Re-flights**

The competitor is entitled to a new working time if:

- a) his model in flight or in the process of being launched collides with another model in flight, or with a model in the process of being launched.
- b) his model in flight or in the process of being launched collides with another competitor's towline.
- c) the competitor's towline is hit by another model in flight or in the process of being launched.
- d) the attempt has not been judged by the official time-keepers.
- e) his attempt was hindered or aborted by an unexpected event, not within his control. Crossed lines are not considered as reason for re-flight.
- f) A towline (other than his own) was not removed after launch and is blocking (covering) his own towline.

To claim a re-flight considering the above mentioned conditions, the competitor has to make sure that the official timekeepers have noticed the hindering conditions and land his model as soon as possible after this event.

Note that in the case the competitor continues to launch or continues to fly after hindering conditions affected his flight or does re-launch after clearing of the hindering condition(s), he is deemed to have waived his right to a new working time.

The new working time is to be granted to the competitor according to the following order of priorities:

1. in an incomplete group, or in a complete group on additional launching/landing spots;
2. if this is not achievable, then in a new group of several (minimum 4) re-flyers. New group of re-flyers can be completed by other competitors selected by random draw to the number of 4. If the frequency or team membership of the drawn competitor does not fit or the competitor will not fly, the draw is repeated;
3. if this is also not achievable, then with his original group at the end of the ongoing round.

In priority-case 2 and 3, the better of the two results of the original flight and the re-flight will be the official score, except for the competitors who are allocated the new attempt. For those the result of the re-flight is the official score. A competitor of this group who was not allocated the new attempt will not be entitled to another working time in case of hindering.

## **5.6.5. Cancellation of a flight and/or disqualification**

### **5.6.5.1.**

- a) The flight is cancelled and recorded as a zero score if the competitor used a model aircraft not conforming to any item of rule 5.6.1. In the case of intentional or flagrant violation of the rules, in the judgement of the Contest Director, the competitor may be disqualified.
- b) The flight in progress is annulled and recorded as a zero score if the model aircraft loses any part during the launch or the flight, except when this occurs as the result of a mid-air collision with another model aircraft or towline.
- c) The loss of any part of the model aircraft during the landing (coming into contact with the ground) is not taken into account.
- d) The flight is cancelled and recorded as a zero score if the model aircraft is piloted by anyone other than the competitor.
- e) The flight is cancelled and recorded as a zero score if, during landing, some part of the model aircraft does not come to rest within 75 metres of the centre of the competitor's designated landing circle.

\* There is a relevant paragraph inserted here in the BMFA Variations, Section 7.4. \*

## **5.6.6. Organisation of the Flying.**

### **5.6.6.1. Rounds and Groups**

- a) The flying order for the initial qualifying rounds shall be arranged in accordance with the transmitter frequencies in use to permit as many simultaneous flights as possible. A minimum of 6 and preferably 8 to 10 competitors should be scheduled for each group.
- b) The flying order shall be scheduled in rounds sub-divided into groups.
- c) The flying order shall be determined by a matrix system that minimises situations where competitors fly together more than once (see paragraph 5.6.12.5 at the end of these rules regarding suggested matrix sets).

### **5.6.6.2. Flying in Groups**

- a) Competitors are entitled to five minutes preparation time, which is counted from the moment his group is called to take position at the designated launching area, to the start of the group's working time.
- b) The working time allowed to each competitor in a group shall be of exactly ten (10) minutes duration.
- c) The organisers must positively indicate the start of a group's working time, by audible signal; see 5.6.12.1 for details.
- d) Audible and visual signals must be given when eight (8) minutes of the group's working time has elapsed.
- e) The end of the group's working time must be positively indicated by audible signal, as for the start.
- f) Any model aircraft airborne at the completion of the working time must land immediately.

## **5.6.7. Control of Transmitters**

### **5.6.7.1.**

- a) The Contest Director will not start the contest until all competitors have handed over all transmitters to the organisers.
- b) Failure to hand in a transmitter before the official starting time of the contest may result in the competitor forfeiting his first round flight.
- c) Any test transmission during the contest without permission of the Contest Director is forbidden and will result in disqualification.
- d) The competitor must hand over his transmitter to the designated official (usually the timekeeper) immediately after finishing his flight.

## **5.6.8. Launching**

\* There is a section covering the UK requirements for single and two man pulley towing and the use of electric winches in Class 7.4 - UK Variations on Class F3J \*

### **5.6.8.1.**

At all times, the models must be launched upwind in the marked launching corridor (5.6.2.2). An attempt is annulled and recorded as zero if the model aircraft is launched outside the launching corridor.

### **5.6.8.2.**

The launch of the model aircraft will be by hand held towline only.

### **5.6.8.3.**

#### **Towing**

- a) Tow persons are allowed no mechanical aids, other than pulleys, to facilitate towing but may use a hand reel (hand winch) to recover the towline after launching is complete.
- b) Immediately after release of the model aircraft from the launching cable, without delay the towline helpers must either recover the towline on a hand reel (hand winch) or, when a pulley is used, they must continue to pull the towline until it is completely removed from the towing area in order to avoid crosscutting with other lines which are still in a state of towing or will be used for towing.

This is not applicable if a line break occurs. In this case only the residual line attached to the ground or used by the towing helpers has to be removed from the launching area. A designated judge (launch line-manager) has to overview and control and, if necessary, - call on towline helpers to remove their lines from the launching area after the model aircraft is released. If his demand is refused, then the pilot whose towline helpers refused, shall be penalised by 100 points.

- c) If towing with pulley, behind the pulley an unbreakable shield with diameter of minimum 15 cm must be fixed to protect the towing helpers against broken whipping line ends.

In the case of towing with a pulley two helpers have to operate the pulley and one of the following preventive measures must be taken:

- The pulley and protective shield must be connected to a 5 mm minimum diameter cord arranged in a V, the arms of which must have a length of 1,5 to 3,0 m and with hand loops on each end; or
- The pulley and protective shield must be connected to the centre of a sufficiently strong yoke of minimum 80 cm length with handholds at each end.

In the case of towing with a pulley, the towline end must be attached to a ground

anchor, which is fixed by metal ropes to two additional safety pins. The length of the main stake must be at least 50 cm from the towline linkage. The safety stakes must be at least 30 cm long. The main stake must be driven into the ground to a depth at least 40 cm. The towline linkage must not exceed 10 cm above the ground. The ground anchor-dimensions and its setup could look like as shown in the drawing "Guideline for proven ground anchor setup".

**5.6.8.4.** The Contest Director will designate a launching area. Tow-persons must remain within this area whenever they are launching a model aircraft.

**5.6.8.5.** The launching device (hand-reel, pulley, anchor, if used, and all other equipment used during launch, except the launching cable with or without any attachment of maximum 5 cm<sup>3</sup> or 5 grams) must neither come loose nor be released by the competitor or his helpers during the launch. The competitor will be penalised by the cancellation of his flight and no other attempt is permitted.

**5.6.8.6.** Any model aircraft launched prior to the start of a group's working time must be landed as soon as possible and re-launched within the working time. Failure to comply will result in cancellation of the competitor's score for that round.

**5.6.8.7. Towlines**

- a) Tow-lines for each competitor must be laid out only during the competitor's five-minute preparation time and must be retrieved by the end of his working time.
- b) The length of the towline shall not exceed 150 metres when tested under a tension of 20 N.
- c) The towline must be made of polyamide monofilament material throughout its length. It must have pennant with an area of 5 dm<sup>2</sup>. A parachute (of five (5) dm<sup>2</sup> minimum area) may be substituted for the pennant provided it is not attached to the model aircraft and remains inactive until the release of the towline. Linkages (couplings, knots, loops, etc.) of different material are permitted up to a total length of 1.5 m. They shall be included in the total length of 150 m.

**5.6.9. Landing**

**5.6.9.1.** Before the contest commences, organisers must allocate a landing circle to each competitor. It is the competitor's responsibility to ensure that he always uses the correct circle for landing.

**5.6.9.2.** Officials (timekeepers) must remain upwind of the 15 m radius circle during the working time before the landing. The competitor and one helper are allowed inside the 15 m radius circle.

**5.6.9.3.** After landing, competitors may retrieve their model aircraft before the end of their working time providing they do not impede other competitors or model aircraft in their group.

**5.6.10. Scoring**

**5.6.10.1.** The attempt will be timed from moment of release from the launching device to either:

- a) the model aircraft first touches the ground; or
- b) the model aircraft first touches any object in contact with the ground. Parts of launching devices (tow-lines) extending away from the ground shall not be interpreted as objects in contact with the ground; or
- c) completion of the group's working time.

- 5.6.10.2.** The flight time in seconds shall be recorded to one decimal place.
- 5.6.10.3.** A penalty of thirty (30) points will be deducted from the flight score for overflying the end of the group's working time for up to a maximum of one (1) minute.
- 5.6.10.4.** A zero score will be recorded for overflying the end of the group's working time by more than one (1) minute.
- 5.6.10.5.** A landing bonus will be awarded in accordance with distance from the landing spot marked by the organisers according to the following tabulation:

<b>Distance from spot (m)</b>	<b>points</b>	<b>Distance from spot (m)</b>	<b>points</b>
up to		up to	
0.2	100	5	80
0.4	99	6	75
0.6	98	7	70
0.8	97	8	65
1.0	96	9	60
1.2	95	10	55
1.4	94	11	50
1.6	93	12	45
1.8	92	13	40
2.0	91	14	35
3	90	15	30
4	85	over 15	0

- 5.6.10.6.** The distance for landing bonus is measured from the model aircraft nose at rest to landing spot allocated to the competitor by the organisers.
- 5.6.10.7.** A contest number, derived from the matrix, must be allocated to each competitor, which must be retained throughout the qualifying rounds.
- 5.6.10.8.** If the model aircraft touches either the competitor or his helper during the landing manoeuvre, no landing points will be given.
- 5.6.10.9.** No landing bonus points will be awarded if the model aircraft overflies the end of the group's working time.
- 5.6.10.10.** The competitor who achieves the highest aggregate of points comprising of flight points plus landing bonus points minus penalty points will be the group winner and will be awarded a corrected score of one thousand points for that group.
- 5.6.10.11.** The remaining competitors in the group will be awarded a corrected score based on their percentage of the group winner's total score before correction (i.e. normalised for that group) calculated from their own total score as follows:

$$\frac{\text{Competitors own score multiplied by 1000}}{\text{Highest points total scored in the group (before correction)}}$$

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

## **5.6.11. Final Classification**

### **5.6.11.1.**

- a) If five (5) or less qualifying rounds are flown, the aggregate score achieved by the competitor will be the sum of his scores for those five rounds. If more than five rounds are flown, then his lowest score will be discarded before determining his aggregate score.
- b) At the end of the qualifying rounds, a minimum of nine (9) competitors with the highest aggregate scores will be placed together in a single group to fly the fly-off rounds. At the organiser's discretion, if frequencies permit, the number of competitors qualifying for the fly-off may be increased.

**5.6.11.2.** The working time for each competitor who qualifies for the fly-off rounds will be of fifteen (15) minutes duration. As before, audible signal will be given at the start of the group working time, at exactly thirteen (13) minutes and at exactly fifteen (15) minutes.

**5.6.11.3.** The scoring of the fly-off rounds shall be as in section 5.6.10.

**5.6.11.4.** Final placing of the competitors who qualify for the fly-off shall be determined by scores in fly-off; their scores in the qualifying rounds being discarded. If less than six (6) fly-off rounds are flown their aggregate scores over the fly-off rounds is counted, if six (6) or more fly-off rounds are flown the worst result of each competitor is discarded.

In the event that two or more competitors have the same aggregate fly-off score, final positions of those competitors shall be determined by their respective position in the qualifying rounds; the higher positioned competitor being awarded the higher final position.

## **5.6.12. Advisory Information**

### **5.6.12.1. Organisational Requirements**

- a) The organisers shall ensure that each competitor has no doubt about the precise second that the group's working time starts and finishes.
- b) Audible indication may be by automobile horn, bell or public address system etc. It must be remembered that sound does not travel far against the wind; therefore the positioning of the audio source must be given some thought.
- c) To be a fair contest, the minimum number of fliers in any one group is four. As the contest proceeds, some competitors may be obliged to drop out for various reasons. When a group occurs with three (3) or fewer competitors in it, the organisers move up a competitor from a later group, ensuring if possible, that he has not flown against any of the others in previous rounds and of course that his frequency is compatible.

### **5.6.12.2. Time-keeper Duties**

- a) Organisers must make sure that all who are to act as timekeepers are fully aware of just how important their duties are and to make certain that they are conversant with the rules particularly those that require quick positive action in order not to jeopardise a competitor's chances in the contest.
- b) \* The timekeepers will be responsible for handing transmitters to competitors prior to the start of the working time and for returning them to Control immediately after the end of the flight. \*

- c) The organisers must ensure that an official is nominated to note any competitor who overflies the end of the group's working time and to time his excess flight time.

### **5.6.12.3 Groups**

- a) The composition of groups should minimise the situations where any competitor flies against another many times, except in the fly-off. It is recognised that, in practice, with certain numbers of competitors or where more than three rounds are flown, a situation where a competitor flies against another more than once may be unavoidable. This must be kept to a minimum.
- b) In order to minimise the time needed to run the contest, it is very important to arrange the starting order to get the minimum number of groups per round, with the maximum possible competitors in each group. It is recommended that groups with vacant starting positions are put at the end of each round, to keep space free for any reflights.
- c) The starting order has to ensure that, as far as possible, there are no competitors of the same team in the same group.

## **7.4 UK VARIATIONS ON CLASS F3J - THERMAL DURATION GLIDERS**

### **7.4.5.6.8 Launching**

The following defines the requirements for flying and defines the requirements if using electric winches to launch as an alternative to hand tows.

#### **1. Electric winches**

- (a) At all UK national events electric winches may be used as an alternative to launching by hand towing. The winch must have a maximum power specification no greater than that defined for use in F3B events. All winches used in competition must have a recognised test certificate or be able to pass a test if required. For all winch specifications and testing see F3B rules Para 5.3.2.2 Launching.
- (b) Turn-around devices, which must be used, shall be no more than 150 meters from the winch.

#### **1.1 General Rules**

- (a) All launching shall take place in an area as designated by the organiser with provisions made for launching into the wind. Launches may be made with an electrical powered winch as an alternative to hand towing. The winch must be capable of meeting the requirements as set out below.
- (b) Upwind turnaround devices, which must be used, shall be no more than 150 m from the winch. The height of the axis of the turnaround pulley from the ground must not exceed 0.5 metre.
- (c) Release of the model must occur within approximately 3 meters of the winch or, if there is a safety corridor in use, then launching must take place at the front of the corridor (front being where the winch is positioned) with both feet of the launcher inside the corridor. An automatic means must be provided to prevent the line unwinding from the reel during launch.
- (d) The towline (which must be of non-metallic material except for linkages) must be equipped with a pennant having a minimum area of 5 dm<sup>2</sup>. A parachute (5 dm<sup>2</sup> minimum area) may be substituted for the pennant provided it is not attached to the model aircraft and remains inactive until the release of the cable. During complete rewinding of the line on to the winch, the parachute, if used, must be removed or deactivated.
- (e) After release of the model aircraft from the towline, the towline should be rewound without delay by operating the winch, until the parachute (or pennant) is approximately 4 metres from, or nearer to, the turnaround pulley. However a winch must not be operated when the towline is lying on the ground and lying across other tows or if it strikes another towline during launching
- (f) The flight is cancelled and a penalty of 1000 points is deducted from the final counting if, during the launching phase of the flight, any part of the winch or turn around related equipment (excluding parts of the line) becomes detached or is ejected in any way. No further attempt is permitted for that flight.

#### **1.2 Winch Requirements**

- (a) The winch shall be fitted with a single starter motor. The starter motor must come from serial production. It is allowed to fit the arbour of the rotor with ball or needle roller bearings at each end. The drum must be driven directly by the motor. Any

further change of the original motor will lead to disqualification. When in use, the drum must have a fixed diameter.

- (b) The power source shall be a 12 volt lead/acid battery.
- (c) The battery must supply the winch motor with current through a magnetically or mechanically actuated switch. The use of any electronic device between the winch motor and the battery is forbidden. A competitor may interchange various parts as he wishes provided the resulting winch conforms to the rules.
- (d) There must be a quick release mechanism on the power lead to the battery in order to remove power from the motor in an emergency. (Connections to the battery must be removable without the need for tools).
- (e) The motor must not be cooled, and the battery must not be heated.
- (f) The purpose of the above rules is to limit the power used for the launch. Therefore with the exception of the single winch battery, line stretch, and the small amount of energy in the rotating rotor and winch drum, no energy storage devices like flywheels, springs, weights, pneumatic devices or any similar devices is allowed.
- (g) The complete winch (battery, cables switch and motor) must have a total resistance of at least 23.0 milliohms. The allowed resistance may be obtained by long cables or by adding a fixed resistor or resistors between the motor and the battery. The design must not allow for an easy change of the total resistance at the launch line (e.g. by shorting the resistor, or resistors) except for opening and closing the circuit.
- (h) The plus and minus poles of the battery must be readily accessible with alligator (crocodile) clips for voltage measurements. One of the cables from the battery (through which the total current flows) must be accessible for a clamp transducer (clamp meter).
- (i) The battery must stay unloaded for at least two minutes after any previous test or a launch before being measured.
- (j) The winch/battery combination should be tested by measuring the open circuit battery voltage and also the battery voltage and current flowing with the winch motor stalled. The current is measured 300mS after power is applied. From these readings the total circuit resistance (which must NOT be less than 23 milliohms) is calculated by dividing the open circuit voltage by the stalled current. Voltage should be measured by a digital voltmeter/multimeter and a current transducer probe is the preferred method of measuring the stalled current. The battery voltage when the winch is stalled must not be less than 9 volts if fully charged or 8 volts if used.

Conformance with these requirements can be demonstrated by use of either the BARCS winch test apparatus or the similar equipment available through the BMFA, F3B flyers. If the winch cannot be mechanically locked, the use of a strop is allowed

Following a satisfactory test, a certificate will be issued and stickers of conformance affixed to both the winch and battery. If motor, leads or battery are changed, the winch needs to be re-tested for conformity.

- (l) The organiser must appoint at least one processing official, who will process any winch which for which a certificate of conformance is not available.
- (m) If test apparatus is available on the field but a competitor still insists on commencing flying with a winch for which no certificate is available and the winch is subsequently tested and found not to conform, the flight is penalised with 1000

points. This applies to the flight before the test. The penalty of 1000 points will be a deduction from the competitor's final score and shall be listed on the score sheet of the round in which the penalisation occurred.

- (n) If no test apparatus is available on the field but a competitor is in possession of a winch for which no certificate is available, and which the CD believes may be more powerful than allowed by the above requirements, the CD has the right to ban that winch until a certificate is available and require the competitor to use a winch which does meet the requirements, although such a winch may belong to another competitor.
- (o) The certificate of testing which is generated for each tested winch/battery combination, must be produced on request from the contest CD or Organiser. The certificate should include the following details:
  - Amps drawn when motor stalled
  - Battery voltage when motor stalled
  - Battery unloaded voltage
  - The total resistance of the system.
  - The battery type and spec.
  - Motor type.
  - Test number

#### **4. Retrieval of Towline/s**

- (a) The towline must be retrieved immediately after release of the model from the launching device. The method of retrieval of the towline line will vary with launch method and prevailing conditions. The method of retrieval must ensure that the towline is recovered expeditiously so as to prevent conditions that will hinder other fliers either launching, waiting to launch or in a manner that could cause damage to other competitors launching equipment.
- (b) It is the competitor's responsibility to ensure he has adequate helpers and that they are adequately briefed/practiced in retrieval of launching equipment.
- (c) If after due warning a competitor continues to hinder other competitors or damage their equipment then the CD can impose a 100 point safety penalty, to be applied to the final score for the competition.

#### **7.4.5.6.12 Advisory Information**

#### **5.6.12.2 Timekeepers Duties**

Delete (b) and replace with:

- b) Competitors shall arrange for their flights to be timed by their helpers. Any person timing for a competitor shall be deemed to be a helper for that competitor. If, for any reason, the CD decides that the flight has been miss-timed by the timekeeper, a zero score will be awarded.

If a transmitter control compound is in use, the timekeepers will be responsible for handing transmitters to competitors prior to the start of the working time and for returning them to Control immediately after the end of the flight.

## 7.9.1.1 F3J Team Selection League

### 7.9.1.1.1 Purpose

To encourage wider participation in F3J contests and provide a sound reliable basis for the selection of the UK team for international contests. All mention of League events below should be understood to mean the UK F3J Team Selection League

### 7.9.1.1.2 League Events (General)

- (a) The league will be run annually, typically starting in April and ending in October. The final classification of competitors placings shall be determined at the end of the season.
- (b) Team selection will be achieved by 7 designated competitions. To avoid clashes no more than one such designated contest may be scheduled on the same weekend.
- (c) Entry to BMFA F3J league events is open to all BMFA, SAA, RAFMAA and RNMAA members.

Non-members of these organisations are permitted to enter the events and have their entry count for league points on payment of five times the standard entry fee and they must also produce evidence of valid insurance cover.

At the CD's discretion, non-members of these organisations are also permitted to enter the events on payment of the standard entry fee. They must produce evidence of valid insurance cover and their scores will not count towards league points.

- (d) Entry will be free to junior competitors.

### 7.9.1.1.3 Definition of a League Contest

A contest qualifies for inclusion in the league scoring system if it satisfies the following requirements.

- (a) A minimum of three rounds shall be completed. If more than five rounds are flown then the lowest round score will be discarded before determining the competitors final score.
- (b) Each one day UK event (weather permitting) will include two rounds of a 15 minute fly-off. At the end of the preliminary round the 15% of the competitors, rounded up to a whole number, will qualify for the fly-off, subject to a minimum of 4 pilots because this is the minimum slot size
- (c) A minimum of 15 competitors must start the contest.
- (d) The contest is flown to the current FAI F3J rules (BMFA Class 7.3 plus Class 7.4, BMFA UK Variations on F3J) as amended by:
  - (i) BMFA UK F3J Soaring League Rules (see 7.9.1.1)
  - (ii) BMFA UK F3J Soaring league Guidelines (See 7.9.1.3)
  - (iii) Any CIAM amendments to the FAI F3J rules

**Note** - Class 7.3 in this rule book is the up-to-date current FAI F3J rules consisting of the class rules from the latest FAI Sporting Code. Class 7.4 is the UK variations on FAI F3J, tailoring the full F3J rules for use in the UK. Class 7.9.1.1 are the actual league rules and Class 7.9.1.3 are the league organisational guidelines.

- (e) In F3J contests only one entry is permitted per competitor. No competitor can submit multiple entries to secure more flights and hence an unfair advantage over others.

#### 7.9.1.1.4 League Scoring

- (a) Only completed contests as in 7.9.1.1.3 above shall be scored.
- (b) A competitor's score will be the aggregate of points scored in all qualifying rounds of a contest, excluding the fly-off if one takes place.
- (c) Competitor's league scores are to be calculated as follows:

The highest placed competitor, before the fly-off, is awarded 100 league points and the other league qualifier's scores use the formula:

$$\text{Competitor's league score} = \frac{\text{Competitor's event score}}{\text{Winner's event score}} \times 100$$

- (d) Fly-off competitors will have extra points added to their pre fly-off scores as follows.

Fly off bonus points will be awarded as follows:

Winner	-	3 points,
2nd	-	2 points,
3Rd	-	1.5 points,
4th	-	1 point and
5th	-	0.5 points.

Thus a competitor coming fourth pre fly-off with a percentage score of 95 who then wins the fly-off will increase his score by 3 points giving a final score for the event of 98 points.

- (e) Should a non British competitor reach a fly-off the bonus points will be granted according to the final position of the British pilots in the fly-off and the remainder of the top five according to their position in the rounds prior to the fly-off. If there are only 4 pilots in the fly-off bonus points will be awarded down to 4th place.
- (f) Any FAI sanctioned F3J event which is open to all contestants can count for a competitor's score instead of one of the listed UK events, except for the mandatory UK 2 day event (see 7.9.1.1.5 below)

#### 7.9.1.1.5 League Contests Qualifying for Final League results

- (a) Final league scores shall be determined by adding up the scores achieved in the league contests qualifying for the final league results as shown below.

Five or more league contests	-	Best four results from such contests
Four league contests	-	Best three results from four contests
Three league contests	-	Best two results from three contests
Two league contests	-	Best two results from two contests

Note: If four or more contests take place the result must include a score from one of the UK multi day competitions to be included in the final total provided that two or more multi day events are actually take place.

- (b) Any events which need to be abandoned, due to weather or other circumstances, shall utilise a reserve date, or two reserve dates. If two reserve dates are

specified, one should be at the mid point of the season. These dates shall be pre-declared in the schedule of events for the year and shall be utilised in order of the abandoned event. Any required re-run will take place at the original location or as close as is practical to it and will be open to both the old and new contestants. The intended activation of this reserve date/s will be advised on the BMFA (news page), BARCS & Flyquiet web sites and, if lead times allow, in the BMFA News.

#### **7.9.1.1.6 Contest Entry**

- (a) Contest entry shall be by pre-entry, to be received by the Contest Organiser (CO) not later than Thursday in the week preceding the contest. Entries may be accepted after this date at the discretion of the CO and on the day if spaces are available in the matrix.
- (b) Entry fees will be reimbursed to competitors if the CO receives cancellation of their pre-entry up to and including the Thursday in the week preceding the contest. The entry fee will not be reimbursed if the CO receives cancellation after this day.
- (c) Entries received after Thursday preceding the event (including entries on the day) will incur double the normal entry fee.
- (d) Entry shall include the following information
  - (i) The date and venue of the event
  - (ii) At least three (3) even frequencies (35 MHz – channels 56 to 90) or notification that the competitor will be using 2.4 GHz equipment.
  - (iii) BMFA membership number (or equivalent). Proof of suitable insurance will be required before competitors are allowed to compete in the event.
  - (iv) Name, address and Telephone No. of each competitor.
  - (v) Team member's names if teams are submitted.
- (vi) Cheques to be made payable to BMFA unless a specific league event (for example – Interglide) is run on behalf of the BMFA's SFTC, and the entry form designates an alternate payee.
- (e) Competitors wishing to receive confirmation of pre-entry shall include a stamped self-addressed envelope with their entry.

## 7.9.1.2 UK F3J TEAM SELECTION

- (a) The pilots who achieve 1st, 2nd and 3rd places in the BMFA F3J League shall be recommended to the BMFA Silent Flight Technical Committee (SFTC) as the UK senior team. Competitors placing 4th and below shall qualify, in order corresponding to their final classification, for senior team placing as reserves, 4th place being 1st reserve, 5th place being 2nd reserve etc., subject to (d) below.
- (b) Junior pilots who achieve 1st, 2nd and 3rd highest places in the BMFA F3J League shall be recommended to the BMFA Silent Flight Technical Committee (SFTC) as the UK junior team. Junior competitors placing 4th and below shall qualify, in order corresponding to their final classification, for junior team placing as reserves, 4th place being 1st reserve, 5th place being 2nd reserve etc.

**Note** - The FAI considers a competitor to be a junior up to and including the calendar year (1st January - 31st December) in which they attain the age of 18 years.

- (c) For the purpose of team selection, juniors who attain the age of 18 during the team selection year shall be deemed a senior. This only applies when the team selection year precedes the Championship year
- (d) The team selection process shall be done each year even if there is no Championship scheduled for the following year. This is to ensure that official team(s) have been selected if a Championship is arranged at short notice.

## 7.9.1.3 UK F3J TEAM SELECTION LEAGUE GUIDELINES

### 7.9.1.3.1 Winches

The use of winches is allowed at UK national F3J league events provided the winch & battery combination meets the requirements of the this Rule Book (UK Variations on Class F3J, section 7.4.5.6.6, item 3) rules.

### 7.9.1.3.2 Contest Schedule

- (a) Briefing (unless otherwise advised) 9.45 am
- (b) Start of first round (unless otherwise advised) 10.00 am

### 7.9.1.3.3 Contest Officials

- (a) The Contest Organiser (CO) is the person nominated by the SFTC for the administration of BMFA UK F3J League.
- (b) The Contest Director (CD) is the person nominated by the CO to direct the contest. The CO may nominate themselves as CD. The CD will appoint assistants from local volunteers as required.
- (c) The CD will nominate a three man jury at the start of the contest. The jury may consist of pilots, officials or observers.

#### **7.9.1.3.4 Protests**

The protest procedure is as noted in the BMFA General Rules, Section 2, rule 2.2.13 and repeated in this rule book as General Rules for Silent Flight Contests, rule 7.2.11, with the following additions:

- (a) If one of the nominated jury members is directly involved in a specific protest then that person will stand down and a replacement juror will be nominated by the CD to act while that protest is being considered.
- (b) In consideration of the problems which would be caused to the running of the rounds of the contest, all protests should be passed to the CD in writing by the competitor within 30 minutes of the CD's decision being made. The protest must be accompanied by double the entry fee which will be returned if the protest is upheld.

## **7.5 100S THERMAL SOARING**

### **7.5.1 Objective**

To provide a thermal soaring competition for standardised R/C gliders.

### **7.5.2 Model Characteristics**

- (a) Maximum projected wingspan will be 100 inches.
- (b) Directional control shall be by the use of rudder and elevator only.
- (c) The use of airbrakes or spoilers, excluding any such device used additionally for directional control or camber changing devices giving altered lift generation, shall be permitted.
- (d) Models using a flying wing or canard configuration are exempt from the wing control surface restrictions in rule 7.5.2.(c) above.

### **7.5.3 Certification**

At the Contest Director's discretion, or upon the demand of two competitors, any model may be checked for compliance with the above rules.

### **7.5.4 Use of Models**

- (a) A competitor may use a maximum of three models.
- (b) Component parts of the two models may be interchanged but not with those of other competitors.

### **7.5.5 Ownership of Models**

- (a) Any individual model may only be flown by one entrant in any particular competition.
- (b) The entrant shall be the genuine owner of the model and, as proof of ownership, the entrant's name or BMFA or BARCS number shall be displayed on the wing of the model in a permanent and prominent manner.

### **7.5.6 Competition Flights**

- (a) The competitor has the right to TWO attempts at each official flight, providing that he declares his first attempt to his own and one adjacent timekeeper, within 30 seconds of release of the model from the towline. He may land at his own discretion but must make his second attempt within the allocated slot time.
- (b) There is an official attempt at flight when the model has left the hands of the competitor or his/her helper under the pull of the launching apparatus.
- (c) All flights to be timed by two stop-watches, one of which must be digital, and in the event of both stop-watches malfunctioning the flight will count as zero.
- (d) Re-flights.
  - (i) At the discretion of the CD, a slot may be re-flown in its entirety, if
    - (1) In the CD's opinion, an outside event has occurred which has interfered with the fair running of the slot.
    - (2) In the CD's opinion, there has been a malfunction of some part of the contest equipment, necessitating a re-flight.

In the event of either of these situations, the first flying slot is to be

considered null and void with all slot scores cancelled, and all competitors in the slot must re-fly, starting from scratch, when called upon by the CD. Should any pilot not be prepared to re-fly, his or her score for that entry in that round will be zero.

- (ii) An individual pilot may request a re-flight if, in his opinion, his flight was hindered or aborted by an unexpected event, not within his control. At the discretion of the CD the pilot may be allowed to re-fly again in another slot, providing there is a vacant spot in the matrix, where in the opinion of the CD, the pilot has valid reasons for requesting a re-flight. In this event the pilot will forfeit his first score and the result of his repetition flight will be his official score.

### **7.5.7 Cancellation of a Flight and/or Disqualification**

- (a) The flight is cancelled and recorded as a zero score if the competitor used a model not conforming to any items of the Model Characteristics of the class entered (7.5.2) In the event of intentional or flagrant violation of the rules, in the judgement of the Contest Director, the competitor may be disqualified.
- (b) The flight is cancelled and recorded as a zero score if the model loses any part in flight, except where this occurs as the result of a mid-air collision with another model or towline. The loss of any part of the model during the landing (touchdown) will not be recorded.
- (c) The flight is cancelled and recorded as a zero score;
  - (i) If after landing some part of the model does not come to rest within 75 metres from the marked centre of the designated landing area.
  - (ii) If the model comes into contact with another person, unless that person has entered the designated landing area before all models have landed and that person is thus in violation of rule 7.5.10 (b). The Contest Director has the discretion to disqualify a flight if the flyer flies over or through the area in which the pilots are standing for launching and landing, at a height which is deemed to be dangerous.
- (d) The flight is cancelled and recorded as a zero score if the model is piloted by anyone other than the competitor.
- (e) The Contest Director has the discretion to warn or disqualify any pilot who deliberately executes unnecessarily dangerous manoeuvres.

### **7.5.8 Organisation of the Flying Slots**

- (a) The competition shall consist of a minimum of four rounds and the flying order for the rounds shall be arranged in accordance with the radio frequencies in use to permit as many simultaneous flights as possible.
- (b) The flying order must be scheduled in Rounds sub-divided into time slots.
- (c) The flying order shall be determined by a Matrix system (see appendices) such that, as far as possible, no competitor shall fly against another competitor more than once, except in the final fly-off.
- (d) Entry on the day of the contest will only be accepted if a vacant position is available in the matrix.
- (e) A competition number, derived from the matrix, must be allocated to each competitor and must be retained throughout the rounds.
- (f) Competitors are entitled to a minimum of 5 minutes preparation time which is

counted from the moment he/she is called to take position at the designated launching area.

- (g) The organisers must indicate very positively the start of slot time both audibly and, if possible, visually (see appendix (1) for details).
- (h) The slot time shall be of exactly 8 (eight) minutes duration.
- (i) Audible and, if possible, visual signals must be given when 2 (two) minutes of the slot time have elapsed and also when 2 (two) minutes of the slot time are remaining
- (j) The end of the slot time must be very positively indicated both audibly and, if possible, visually, as for the start.
- (k) Any model airborne at the completion of slot time must land immediately.
- (l) During flights, pilots and their helpers shall proceed to and remain within a designated Pilot's Box outside the edge of the landing area.

### **7.5.9 Launching**

- (a) The launch of the model will be by:-
  - (i) Hand held towline, with or without a pulley, only one person to tow.
  - (ii) Any anchoring of pulleys to be done by means of a ground stake.
  - (iii) Winch devices (mechanically or hand powered).  
Power winches may be used.  
Power winches should be laid out such that they allow hand towers to launch into wind at all times, whilst maintaining sufficient spacing between launch points.
- (b) The line length not to exceed 150 m when under a tension of 2 kg.
- (c) The towline must be equipped with a pennant or parachute having a minimum area of 5 dm<sup>2</sup>.
- (d) Towlines for each flyer must only be run out during the competitor's five minutes preparation period and must be retrieved by the end of the slot.
- (e) The towers shall remain in any area designated by the Contest Director.
- (f) The Contest Director shall designate take-off points that are arranged in a straight line. The model must be launched from the designated take-off point.
- (g) Any model launched prior to the start of the slot time must be landed and re-launched within the slot time. Failure to comply will result in cancellation of the competitors score for that round.
- (h) The release of the towline from the towers end is not allowed.
- (i) Deliberate weaving of a model on the line is not permitted, and will be declared an attempt by the CD. A relaunch shall be allowed. CD's should regard repetition as unsafe flying, and may disqualify the competitor.

### **7.5.10 Landing**

- (a) The landing zone shall consist of a cross wind rectangle where, if the field size permits, the upwind end of the zone shall be a line positioned 7 metres downwind of the launch line (on which the power winches are located) and the downwind end of the zone shall be another 50 metres downwind of the zone upwind line. That is the landing zone is 50 metres deep. The zone shall extend out to the edge of the

flying field in both directions.

If the field size is restricted the “downwind” edge of the landing zone shall be located upwind of the launch line with the zone’s “upwind” edge being 50 metres further upwind of that.

Alternatively the CD may, if circumstances permit, layout a circle which shall be a 75 metre diameter circle or a similar sized area designated by the CD and placed to one side of the winches.

The centre of the landing area shall be marked in a visible way for instance by use of a spot or a cone.

- (b) Competitors may only retrieve their models on completion of the landing providing they do not impede other competitors and models.

### **7.5.11 Scoring**

- (a) The flight will be timed from the moment of release of the launching device to:
  - (i) The competition of the slot time or,
  - (ii) The moment the model first touches the ground or,
  - (iii) The moment the model first touches any object in contact with the ground.
- (b) The flight score will be composed of ONE point for each FULL second of flight time.
- (c) A penalty of 80 (eighty) points will be deducted from the flight score for over-flying the end of the slot time for up to a maximum of ONE minute (60 seconds).
- (d) A zero score will be recorded for over-flying the end of the one minute penalty time.
- (e) An extra 50 points will be added to the flight time core if, after landing, any part of the model (provided that part has not become detached from the model) comes to rest within the designated landing area, provided the model lands before the completion of the slot time.

### **7.5.12 Slot Scoring**

- (a) The competitor who achieves the highest aggregate of points, i.e. flight points less penalty points, will be awarded a corrected score of one thousand points for that slot.
- (b) The remaining competitors in that slot will be awarded a percentage of the slot winners total score calculated from their own total score, i.e. The Competitor’s own score times 1,000 divided by the highest points total in the slot.

$$\text{Competitor's Slot Score} = \frac{\text{Competitor's Points} \times 1000}{\text{Slot Winner's Points}}$$

The slot score is rounded down to the nearest whole number

### **7.5.13 Final Classification**

- (a) At the completion of ALL rounds the competitors with the highest totals of percentaged scores must perform in a Fly-off ( the CD to decide the number of competitors in the fly-off), to produce the final competition placings by one of the following methods:-
  - (i) Two further slots whereby all finalists compete simultaneously against each

other twice.

- (ii) Three further slots whereby all finalists will compete against each other at least once.
- (b) In the event of a fixed frequency clash in qualifying for the fly-off, the competitor with the lowest total score unable to change frequency must drop out in favour of the next competitor.
- (c) The fly-off differs from the initial rounds in no other way other than the slot time being increased to 12 minutes and an audible warning being given at 10 minutes.

## **7.6.(5.7) HAND LAUNCHED R/C GLIDERS - FAI CLASS F3K**

### **5.7.1. General**

This event is a multitasking contest where RC gliders must be hand-launched and accomplish specific tasks. In principle the contest should consist of at least five rounds. The organiser may announce more rounds to be flown before the start of the contest. In certain situations (for example bad weather conditions) the jury may decide that fewer rounds than initially announced will be flown. In these cases, the number of rounds may be fewer than five and all the rounds shall be considered as the final result.

#### **5.7.1.1. Timekeepers**

The organiser should provide a sufficient number of well-trained, official timekeepers in order to allow enough simultaneous flights at all time. The official timekeeper is not allowed to assist the competitor or his helper in any way. The competitor and his helper are entitled to read their results during the working time.

#### **5.7.1.2. Helper**

Each competitor is allowed one helper who is not allowed to become physically involved in the flight, except for retrieving the airplane, if it has landed outside the start and landing field. The helper is the only person allowed to help the competitor on the start and landing field. Team managers are not allowed to stand inside the start and landing field. After the end of the working time the competitor and the timekeeper must sign the results of the round. If the result is not signed by the competitor, the score for the round will be 0 points.

#### **5.7.1.3. Start Helper**

Disabled persons may ask for assistance at launching and retrieving (catching) their model glider. This start helper has to be different in every round, meaning that every start helper can only be used once. The competitor has to touch the start helper before each launch of the model glider. During a competition with only one class, competitors of less than 1.5 m height may be assisted for launching and/or catching.

#### **5.7.1.4. Transmitter Pound**

The organiser should provide a transmitter pound where all transmitters and/or antennas are kept in custody while not in use during a flight or the corresponding preparation time.

### **5.7.2. Definition of model glider**

#### **5.7.2.1. Specifications**

Model gliders are gliders with the following limitations:

Wingspan maximum .....1500 mm

Weight maximum ..... 600 g

Radius of the nose must be a minimum of 5 mm in all orientations. (See F3B nose definition for measurement technique.)

The model glider must be launched by hand and is controlled by radio equipment acting on an unlimited number of surfaces.

The use of gyros and variometers onboard the model glider is not allowed.

The model glider may be equipped with holes, pegs or reinforcements, which allow a better grip of the model glider by hand. The pegs must be stiff and an integral part of the

model glider within the half-span of the wing, and be neither extendable nor retractable. Devices, which do not remain a part of the model glider during and after the launch, are not allowed.

#### **5.7.2.2. Unintentional jettisoning**

If the model glider suffers any unintentional jettisoning during the flight, then the flight shall be scored zero according to 5.3.1.7. If, during the landing, any unintentional jettisoning occurs (ref. 5.7.6.) after the first touch of the model glider with ground, any object or person, then the flight is valid.

#### **5.7.2.3. Change of model glider**

Each competitor is allowed to use five model gliders in the contest. It is permissible to change parts between these five model gliders. The competitor may change his model gliders at any time as long as they conform to the specifications and are operated on the assigned frequency. The organiser has to mark the five model gliders and all interchangeable parts of each of the five model gliders. All spare model gliders must stay outside the start and landing field and one of the spare model gliders may only be brought into the start and landing field for an immediate change. If changing the model gliders during the working time, then both model gliders must be in the start and landing field.

#### **5.7.2.4. Retrieving of model glider**

If the competitor lands the model glider outside the start and landing field, then it has to be retrieved back to the start and landing field either by the competitor or his helper. Other people, including the team manager, are not allowed to retrieve the model glider. While retrieving the model, it is not permissible to fly it back to the start and landing field. Launching outside the start and landing field in this situation is penalised by 100 points that will be deducted from the final score.

#### **5.7.2.5. Radio frequencies**

Each competitor must provide at least two frequencies on which his model glider may be operated, and the organiser may assign any of these frequencies for the duration of the complete contest. The organiser is not allowed to change the frequency assigned to a competitor during the event. The organiser may re-assign frequencies to competitors only if a separate fly-off is flown and only for the duration of the complete fly-off.

#### **5.7.2.6. Ballast**

Para B3.1 of section 4 b (builder of the model airplane) is not applicable to class F3K. Any ballast must be inside the model glider and must be fixed safely.

### **5.7.3. Definition of the flying field**

#### **5.7.3.1. Flying field**

The flying field should be reasonably level and large enough to allow several model gliders to fly simultaneously. The main source of lift should not be slope lift.

#### **5.7.3.2. Start and landing field**

The organiser must define the start and landing field before the start of the contest. Within the start and landing field each competitor must have adequate space to conduct his launches and landings, at least 30 m distance to any person in the start direction. The organiser should consider about 900 m<sup>2</sup> per competitor, (square of 30 m x 30 m).

All launches and landings must happen within this area. The border line defining the start and landing field is part of the start and landing field. Any launch or landing outside this area is scored zero for the flight.

Competitors may leave the start and landing field while flying their model glider, but starting, landing, and catching the model glider must only occur within the start and landing field.

#### **5.7.4. Safety**

##### **5.7.4.1. Contact with person**

In order to guarantee the highest level of safety, any contact between a flying model glider and any other person (except the competitor or start helper) either in or outside the start and landing field has to be avoided. If such contact happens during either the working or preparation time, the competitor will receive a penalty of 100 points on the total score. In addition, if the contact happens during the working time at the launch of the model glider, this will result in a zero score for the whole round.

##### **5.7.4.2. Mid air collision**

In cases of mid-air collisions of two or more model gliders the competitors will not be granted reflights nor will penalties be levied.

##### **5.7.4.3. Safety area**

The organiser may define safety areas. The organiser must ensure that the safety areas are permanently controlled by well-trained personnel. A competitor will receive a penalty of 100 points, if:

- (a) His model glider lands inside the safety area or touches any ground based object like e.g. car or building,
- (b) The model glider flies below 3 metres over the safety area (measured from the ground).

##### **5.7.4.4. Forbidden airspace**

The organiser may define forbidden airspace, flying inside of which is strictly forbidden at any altitude. If a competitor flies his model glider inside such a forbidden airspace, a first warning is announced to the competitor. The competitor has to fly his model glider out of the forbidden airspace immediately and by the shortest route. If during the same flight the model glider enters the restricted airspace again, the competitor will receive 100 penalty points.

#### **5.7.5. Weather conditions**

The maximum wind speed for F3K contests is 9 m/s. The contest has to be interrupted or the start delayed by the contest director or the jury if the wind is continuously stronger than 9 m/s measured for at least one minute at two metres above the ground at the start and landing field. In case of rain, the contest director should consider interrupting the contest.

#### **5.7.6. Definition of landing**

##### **5.7.6.1. Landing**

The model glider is considered to have landed (and thereby terminated its flight) if:

- (a) The model glider comes to a rest anywhere

- (b) The competitor touches the model glider for the first time by hand or any part of his body (or if the competitor is disabled, the same applies for his start helper).

### 5.7.6.2. Valid landing

Landing is considered valid, if:

- (a) At least one part of the model glider at rest touches the start and landing field or overlaps the start and landing field when viewed from directly above (this provision includes any ground based object within the starting and landing field, as well as the tape marking the boundary of the landing field).
- (b) The competitor (or his helper) touches the airborne model glider for the first time, while standing on the ground with both feet inside the starting and landing field.

### 5.7.7. Flight time

The flight time is measured from the moment the model glider leaves the hands of the competition (or his start helper) until a landing of the model glider as defined in 5.7.6. or the working time expires.

The flight time is measured in full seconds truncating tenth of seconds. Rounding up or down is not applied.

The flight time is official if:

The launch happened from inside the start and landing field and the landing is valid according to 5.7.6., and The launch happened within the working time of the task.

This means that if the airplane is launched before the beginning of the working time then that flight receives a zero score.

In those tasks, where maximum or target flight times are specified, the flight time is scored up to this maximum or target flight time only.

### 5.7.8. Local rules

Local rules may **be used only in cases of safety issues** in local flying areas, but not for changing tasks.

### 5.7.9. Definition of a round

#### 5.7.9.1. Groups

The contest is organised in rounds. In each round the competitors are arranged in as few groups as possible. A group must consist of at least 5 competitors. The composition of groups has to be different in each round.

The results are normalised within each group, 1000 points being the basis for the best score of the winner of the group. The result of a task is measured in seconds. The normalised scores within a group are calculated by using the following formula:  $\text{normalised points} = \text{competitor's score} / \text{best competitor's score} \times 1000$

5.7.9.2. Working time  
The working time allocated to a competitor is defined in the task list. The start and end of the working time must be announced with a distinct acoustic signal. The first moment, at which the acoustic signal can be heard, defines the start and end of the working time.

#### 5.7.9.3. Landing window

No points are deducted for flying over the maximum flight time or past the end of the

working time. Immediately after the end of the working time, or after each attempt for the task “all-up-last-down”, the 30 seconds landing window will begin. Any model gliders still airborne must now land. If a model glider lands later, then that flight will be scored with 0 points.

The organiser should announce the last ten seconds of the landing window by counting down.

### **5.7.9.3. Preparation time**

For each round, the competitors receive at least 5 minutes preparation time. This preparation time should ideally start 3 minutes before the end of the working time of the previous group (or at the beginning of the last attempt in the task “all-up-last-down” of the previous group), in order to save time.

At the beginning of a preparation time, the organisers must call the names and/or starting numbers of the competitors flying in the next group.

### **5.7.9.4. Flight testing time**

After all the model gliders of the previous group have landed, the competitors flying in the next group receive at least 2 minutes of flight testing time, which is part of the preparation time. During this flight testing time the competitors are allowed to perform as many test flights inside the start and landing field as necessary for checking their radio and the neutral setting of their model gliders.

Each competitor has to ensure that he is finished in time with his test flights and is ready to start when the working time of the group begins. The last 5 seconds before the start of the working time have to be announced by the organiser.

Competitors who are not part of this group are not permitted to perform test flights either inside or outside the start and landing field and any competitor so doing will incur a penalty of 100 points .

A competitor will receive a penalty of 100 points if he starts or flies his model glider outside of the working and preparation time,

Competitors may test fly before the transmitter impound and after the last working time of the day.

### **5.7.10. Scoring**

Each competitor must fly at least 3 rounds which have to be completed in order to get a valid final score.

#### **5.7.10.1. Final score**

The final score is the sum of normalised scores of rounds minus penalty points.

If 5 or more rounds are flown then the lowest score is dropped.

If 9 or more rounds are flown then the lowest two scores are dropped.

If 14 or more rounds are flown then the lowest 3 scores are dropped.

If 19 or more rounds are flown then the lowest 4 scores are dropped.

If 24 or more rounds are flown then the lowest 5 scores are dropped.

Penalty points must be shown in the results list with an indication of the round in which they were levied. The penalty points are retained even if the score of the round in which the offence occurred is dropped.

If a competitor collects more than 300 penalty points, he will be disqualified from the

contest.

### **5.7.10.2. Resolution of a tie break**

In the case of a tie break, the best dropped score defines the ranking. If the tie still exists, the next best dropped score (if enough rounds are flown) defines the ranking. If all dropped scores are used and a ranking cannot be achieved, a separate fly-off for the relevant competitors will be flown to achieve a ranking. In this case the contest jury will define one task that will be flown for the tiebreak fly-off.

### **5.7.10.3. Fly-off**

The organiser may announce a fly-off prior at the beginning of the event. The fly-off should consist of at least 3 rounds with a maximum of 6 rounds. If 5 or 6 rounds are flown, the lowest score is dropped.

The maximum number of competitors in a fly-off is limited to 12. The minimum number of competitors in a fly-off should be 10-15 % of the total number of competitors.

A junior fly-off may be held with the maximum number of competitors being 2/3 of the seniors flyoff. A separate junior fly-off is not mandatory.

If a fly-off is flown, the points of the previous rounds are not considered.

### **5.7.11. Definitions of tasks**

Detailed specifications including the tasks to be flown for the day must be announced by the organiser before the start of the contest. The tasks of the program are defined below. Depending on the weather conditions and the number of competitors, the tasks and the related working time may be reduced by a decision of the organiser as defined in the task description.

#### **5.7.11.1. Task A (Last flight):**

Each competitor has an unlimited number of flights, but only the last flight is taken into account to determine the final result. The maximum length of the flight is limited to 300 seconds. Any subsequent launch of the model glider in the start and landing field annuls the previous time. Working time: min 7 minutes, max 10 minutes

#### **5.7.11.2. Task B (Next to last and last flight)**

Each competitor has an unlimited number of flights, but only the next to last and the last flight will be scored.

Maximum time per flight is 240 seconds for 10 minutes working time. If the number of competitors is large, the maximum flight time may be reduced to 180 seconds and 7 minutes working time.

Example:	1st flight	65 s
	2nd flight	45 s
	3rd flight	55 s
	4th flight	85 s
	Total score:	55 s + 85 s = 140 s

### 5.7.11.3. Task C (All up, last down, seconds):

All competitors of a group must launch their model gliders simultaneously, within 3 seconds of the organiser's acoustic signal. The maximum measured flight time is 180 seconds. The official timekeeper takes the individual flight time of the competitor according to 5.7.6 and 5.7.7 from the release of the model glider and not from the acoustic signal. Launching a model glider more than 3 seconds after the acoustic signal will result in a zero score for the flight.

The number of launches (3 to 5) must be announced by the organiser before the contest begins.

The preparation time between attempts is limited to 60 seconds after the 30 seconds landing window. During this time the competitor may retrieve or change his model glider or do repairs. If a competitor's model glider lands outside the start and landing field, the competitor may change his model glider without retrieving and bringing back the one which has landed outside the start and landing field. This is an explicit exception to 5.7.2.3 and only valid for this particular Task C.

The flight times of all attempts of each competitor will be added together and will be normalised to calculate the final score for this task.

No working time is necessary.

Example:	Competitor A:	45+50+35 s	= 130 s	= 812.50 points
	Competitor B:	50+50+60 s	= 160 s	= 1000.00points
	Competitor C:	30+80+40 s	= 150 s	= 937.50 points

### 5.7.11.4. Task D (Increasing time by 15 seconds):

Each competitor has an unlimited number of flights for each target flight time. Each competitor must try to complete the first flight of 30 seconds or more. Once this is accomplished, each of the next target flight times must be incremented by 15 seconds therefore flight times should be equal to or more than: 30 s; 45 s; 60 s; 75 s; 90 s; 105 s; 120 s. The longest target flight time is 120 seconds.

The time of all the achieved target flight times is taken into account for scoring.

Working time is 10 minutes.

Example:

1st flight = 32 s	target time of 30 seconds is achieved; flight score is 30 points. The next target flight is 45 seconds.
2nd flight = 38 s	45 seconds not reached, score 0
3rd flight = 42 s	45 seconds not reached, score 0
4th flight = 47 s	target time of 45 seconds is achieved; flight score is 45 points; partial score is: 30 + 45 points. The next target flight is 60 seconds
5th flight = 81 s	target time of 60 seconds is achieved; flight score is 60 points.

The next target flight should be 75 seconds but the remaining working time is only 65 seconds therefore the next target flight cannot take place.

The total score for the task is: 30+45+60 = 135 points

#### 5.7.11.5. Task E (Poker - variable target time)

Before the first launch, each competitor announces a target time to the official timekeeper. He can perform an unlimited number of launches to reach or exceed, this time. If the target is reached or exceeded, then the target time is credited and the competitor can announce the next target time, which may be lower, equal or higher, before he releases the model glider during the launch. If the target time is not reached, the announced target flight time can not be changed. The competitor may try to reach the announced target flight time until the end of the working time. Towards the end of the working time, the competitor must still announce a real time specified in minutes and/or seconds. Calling only "until the end of the working time" is not permitted.

The announcement may be repeated 5 times. The 5 flights with achieved targets are scored. The achieved target times are added together.

This task may be included in the competition program only if the organiser provides a sufficient number of official timekeepers, so that each competitor in the round is accompanied by one official timekeeper.

Working time is 10 minutes.

Example:	Announced time	Flight time	Scored time
	45 s	1st flight 46 s	45 s
	50 s	1st flight 48 s	0 s
		2nd flight 52 s	50 s
	47 s	1st flight 49 s	47 s
	47 s	1st flight 50 s	47 s
	60 s	1st flight 57 s	0 s
		2nd flight 63 s	60 s
	60 s	1st flight 65 s	60 s
			Total score is 262 s

#### 5.7.11.6. Task F (3 out of 6):

During the working time, the competitor may launch his model glider a maximum of 6 times. The maximum accounted single flight time is 180 s. The sum of the three longest flights up to the maximum of 180 s for each flight is taken for the final score.

Working time is 10 minutes.

#### 5.7.11.7. Task G (Five longest flights)

Each competitor has an unlimited number of flights. Only the best five flights will be added together. The maximum accounted single flight time is 120 seconds.

Working time is 10 minutes.

#### 5.7.11.8. Task H (One, two, three and four minute flights, any order)

During the working time, each competitor has an unlimited number of flights. He has to achieve four flights each of a different target duration. The target flight times are 60, 120, 180 and 240 seconds in any order. Thus the competitor's four longest flights flown in the working time are assigned to the four target times, so that his longest flight is assigned to the 240 seconds target, his 2nd longest flight to the 180 seconds target, his 3rd

longest flight to the 120 seconds target and his 4th longest flight to the 60 seconds target. Flight seconds longer than the target seconds are not taken into account.

Working time is 10 minutes.

Example:	Flight time	Scored time
1st flight	63 s	60 s
2nd flight	239 s	239 s
3rd flight	182 s	180 s
4th flight	90 s	90 s

Total score of this task would be 60 s + 239 s + 180 s + 90 s = 569 s

## **7.36 Hand Launched R/C Gliders - FAI Class F3K - UK RULES**

### **7.36.1 General**

(a) The following rules are based on the FAI CIAM F3K class rules that are set out above.

The only significant changes, as UK local rules, is the addition of text sections dealing with the allowance of the usage of mini-bungees. Where such UK specific text is introduced it is marked within asterisk as \*thus\*.

(b) These rules define a multitasking contest for F3K “hand launched” radio controlled gliders where a number of specific tasks shall be accomplished.

(c) Each competitor is allowed one helper who may time and verbally assist but must not become involved in the flying task or in the handling of the model during the slot time \*other than for model release when the pilot is using a bungee. If the pilot they assist is using a bungee they may fetch the line and stretch the bungee\*.

Proxy launching is allowed but only under the circumstances as defined by the F3K rules.

#### **7.36.1.1 Frequency Control**

\*The organiser must provide a robust method for frequency control. This may be implemented in various ways such as: a transmitter impound, antennae impound or by prior frequency verification backed by continuous frequency monitoring.\*

#### **7.36.1.2 UK Rules Regarding Bungee Usage at UK F3K Contests**

(a) \*As a UK local addition of the international F3K rules, specifically as a modification to rule 5.7.2.1 below, the use of a “mini bungee” for model launching is also permitted.

(b) If a mini bungee is used, it must be supplied by the competitor and have the

following characteristics:

- (c) A maximum un-stretched length of 20 metres of which a minimum of 15 metres must be of non stretching line.
- (d) A clearly visible pennant must be attached to the model end of the line
- (e) The bungee must be staked securely enough to withstand sustained tension. The stake should be positioned 5 metres upwind of the windward edge of the launching and landing area.
- (f) The maximum stretched length of the bungee at the point of launch shall not exceed 27 metres. Any competitor using a bungee shall also provide a 27 metre non elastic tape where one end is anchored by the bungee stake; the other end shows the maximum permissible stretch at launch. The maximum pull at a 27 metre stretch of the bungee shall not exceed 6 kg.
- (g) The bungee and 27 metre tape shall be reeled in by the competitor at the end of his/her slot unless the competitor, or someone else using this competitor's bungee, are flying in the next slot\*

## **7.37.1 UK F3K Soaring League**

### **7.37.1.1 Purpose**

To encourage wider participation in F3K contests and provide a sound, fair and reliable basis for the selection of the UK F3K team for international contests.

Detailed information on contests dates, results, venues etc for the current year will be found on relevant web sites or via the BMFA web site links.

### **7.37.1.2 BMFA F3K League Events (General)**

- (a) The league will be run annually, typically starting in March and ending in October.
- (b) The BMFA F3K annual league will consist of at least six official F3K contests.
- (c) Entry to BMFA F3K league events is open to all BMFA, SAA, RAFMAA and RNMAA members.

Non-members of these organisations are permitted to enter the events and have their entry count for league points on payment of five times the standard entry fee and they must also produce evidence of valid insurance cover.

At the CD's discretion, non-members of these organisations are also permitted to enter the events on payment of the standard entry fee. They must produce evidence of valid insurance cover and their scores will not count towards league points.

- (d) BMFA F3K league events should attempt to use all of the officially defined FAI F3K tasks at each league event if time allows and is therefore possible. Over the course of a year's BMFA league calendar events, all of the official FAI F3K tasks must have been run at least twice.

### 7.37.1.3 Definition of a BMFA F3K League Contest

A contest qualifies for inclusion in the league scoring system if it satisfies the following BMFA R/C Silent Flight Rules - Glider 56 Effective January 2009, requirements.

- (a) \*A minimum of four full contest rounds shall be completed\*.
- (b) \*A minimum of 8 competitors must start the contest\*.
- (c) The contest is flown to the current FAI F3K rules as defined in the current BMFA rules book.
- (d) In F3K contests only one entry is permitted per competitor. No competitor can submit multiple entries to secure more flights and hence an unfair advantage over others.
- (e) If time and weather permits, a flyoff will be held when a minimum of seven contest rounds have been fully completed and will be held at the end of any contest. A flyoff must consist of at least three full flyoff rounds in order to be valid in terms of BMFA league scoring and will consist of the top placed 10% of the contest entry field or the top placed 5 competitors, whichever is greater.
- (f) Each competitor is allowed to use up to five model gliders in the contest

### 7.37.1.4 Overseas Contests

A competitor can submit up to two scores from overseas competitions if

- (a) The competition is flown to the current FAI F3K rules.
- (b) The competition meets the minimum BMFA requirements as defined above.
- (c) The competition results are published on a recognised F3K web site.

### 7.37.1.5 League contest event scoring

- (a) Only completed league contests as above shall be scored.
- (b) A competitor's contest event score will be determined by the rules as defined in section 5.7.10.1 of the official FAI Rules.
- (c) A competitor's league event score is to be calculated as follows:

The highest placed competitor, before any fly-off, is awarded 100 league points and the other league qualifier's scores use the formula:

Competitor's league score = Competitor's event score / Winner's event score x 100

- (d) \*In addition to a competitors' contest event score, if a valid fly off is held at a contest. Fly-off competitors will have extra points added to their pre fly-off scores as follows.

The fly-off winner gains an extra 4 points, second 3 points, third 2 points, fourth 1 point and fifth 0.5 point. Thus a competitor coming fourth pre fly-off with a Percentage contest score of 98% who then wins the fly-off will increase his/her league score by 4 points giving a final total score for that league event of 102% points.\*

If no flyoff is held at a contest event, then only the main contest event score will be used for each competitor

### 7.37.1.6 Final BMFA F3K League annual results

- (a) Final F3K BMFA annual league scores shall be determined by adding the scores achieved in the completed league contests qualifying for the final league results as shown below:
- |                       |   |                                       |
|-----------------------|---|---------------------------------------|
| Five or more contests | - | Best four results from such contests  |
| Four league contests  | - | Best three results from four contests |
| Three league contests | - | Best two results from three contests  |
| Two league contests   | - | Best two results from two contests    |
- (b) In the event that more than one competitor achieves the exact same total annual BMFA league score, then a system of countback shall be used to determine the final annual BMFA league placings, with the competitors 5<sup>th</sup> best contest scores being compared to determine who has the higher placing (and 6<sup>th</sup> best contest scores etc if necessary).

### 7.37.1.7 Contest Entry

- (a) Contest entry shall be by pre-entry, to be received by the Contest Organiser (CO) not later than Thursday in the week preceding the contest. Entries may be accepted after this date at the discretion of the CO and on the day if spaces are available in the matrix. The CO may delegate the collection of entries to the CD or an assistant.
- (b) Entry fees will be reimbursed to competitors if the CO receives cancellation of their pre-entry up to and including the Thursday in the week preceding the contest. The entry fee will not be reimbursed if the CO/CD receives cancellation after this day.
- (c) Entries received after Thursday preceding the event (including entries on the day) will incur double the normal entry fee.
- (d) Entry shall include the following information
- The date and venue of the event
  - At least three (3) even frequencies (35 MHz – channels 60 to 90)
  - BMFA membership number (or equivalent). Proof of suitable insurance will be required before competitors are allowed to compete in the event.
  - Name, address and Telephone No. of each competitor.
  - Payment for entry will be collected at the pilots' briefing before the start of the contest.

### 7.37.2 UK F3K TEAM SELECTION

- (a) The pilots who achieve 1st, 2nd and 3rd places in the annual BMFA F3K League shall be recommended to the BMFA Silent Flight Technical Committee (SFTC) as the UK senior team for that year. Competitors placing 4th and below shall qualify, in order corresponding to their final classification, for senior team placing as reserves, 4<sup>th</sup> place being 1st reserve, 5th place being 2nd reserve etc., subject to (d) below.
- (b) Junior pilots who achieve 1st, 2nd and 3rd highest places in the annual BMFA F3K League shall be recommended to the BMFA Silent Flight Technical Committee (SFTC) as the UK junior team for that year. Junior competitors placing 4th and

below shall qualify, in order corresponding to their final classification, for junior team placing as reserves, 4th place being 1st reserve, 5th place being 2nd reserve etc.

**Note** - The FAI considers a competitor to be a junior up to and including the calendar year (1st January - 31st December) in which they attain the age of 18 years.

- (c) For the purpose of team selection, juniors who attain the age of 18 during the team selection year shall be deemed a senior. This only applies when the team selection year precedes the Championship year
- (d) The team selection process shall be carried out each year even if there is no Championship scheduled for the following year. This is to ensure that official team(s) have been selected if a Championship is arranged at short notice. BMFA R/C Silent Flight Rules - Glider 58 Effective January 2007
- (e) \*Any pilot using a mini-bungee for launch (as per UK local rules) at any BMFA league contests will not be eligible for F3K team selection\*.

## **7.37.3 UK F3K SOARING LEAGUE GUIDELINES**

### **7.37.3.1 Contest Schedule**

- (a) Briefing (unless otherwise advised) 9.45 am
- (b) Start of first round (unless otherwise advised) 10.00 am

### **7.37.3.2 Contest Officials**

- (a) The Contest Organiser (CO) is the person nominated by the SFTC for the administration of BMFA UK F3K League.
- (b) The Contest Director (CD) is the person nominated by the CO to direct the contest. The CO may nominate themselves as CD. The CD may appoint assistants as required.
- (c) The CD will nominate a three man jury at the start of the contest. The jury may consist of pilots, officials or observers.

### **7.37.3.3 Protests**

The protest procedure is as noted in the BMFA General Rules, Section 2, rule 2.2.13 and repeated in this rule book as General Rules for Silent Flight Contests, rule 7.2.11, with the following additions:

- (a) If one of the nominated jury members is directly involved in a specific protest then that person will stand down and a replacement juror will be nominated by the CD to act while that protest is being considered.
- (b) In consideration of the problems which would be caused to the running of the rounds of the contest, all protests should be passed to the CD in writing by the competitor within 30 minutes of the CD's decision being made. The protest must be accompanied by a fee of £10.00 which will be returned if the protest is upheld.

## 7.22 F3Q - AERO-TOW GLIDERS (FAI Class)

### 5.Q. 1. General Rules

#### 5.Q.1.1. Definition of an Aero-Tow Soaring Contest

An aerotow soaring contest is made of successive rounds comprising a speed and a duration task. The gliders are towed up to 200 m altitude by a model aircraft tug.

The two tasks of any round must be performed with the same glider, without any change of component; the model weight must be identical for the two tasks.

The model glider must be flown by radio by a pilot staying on the ground.

The competition must take place on a reasonably flat and horizontal airfield with very low probability of slope or wave lift.

As soon as the model glider is hooked to the tug aircraft, the competitor must use his radio equipment by himself. He is entitled to one helper in the course of any task from the beginning of the take-off run.

#### 5.Q.1.2 Models and equipment

##### 5.Q.1.2.1 Aerotow gliders

- (a) The models shall have an appearance similar to full-size gliders.
- (b) The fuselage shall have a transparent canopy, similar to the ones in use on full-size gliders.
- (c) Aerotow glider characteristics:
  - i Maximal mass in flight order .....5.0 kg
  - ii Minimal wingspan ..... 3.50 m
  - iii The fuselage width at the master cross-section, not including the wing fillets, must be at least equal to 3.2 % of the glider's wingspan (example: 400cm x 3.2 % = 12.8 cm).
  - iv The fuselage height measured at the master cross-section must be at least equal to 4% of the glider wingspan (example: 400 cm x 4 % = 16 cm).
- (d) The variable geometry models must be in accordance with the rules in any configuration.
- (e) Any change of geometry or area must be actuated at distance by radio control.
- (f) The glider must be fitted with a towing device working with a simple nylon loop and located not more than 10 cm behind the model glider's forward point.
- (g) The glider must be fitted with a wheel providing a minimum of 1 cm clearance at take-off, measured with the glider on a horizontal surface.
- (h) Prefabrication of the model aircraft. Paragraph B.3.1. of Section 4, Part 2 (builder of the model aircraft) is applicable to this class. The only models allowed are those built by the pilot from ready-made parts and in which he installs the equipment.
- (i) Technical control : every competitor shall declare that his model glider(s) conform to the Sporting Code. If the competitor uses a glider which is not in accordance with the rules, he shall be disqualified

### **5.Q.1.2.2 Aerotow model aircraft tug**

- (a) The organiser shall make tugs and pilots available to tow the gliders up to altitude. The tugs shall be able to tow the gliders up to 200 m of altitude in less than 90 s. The tug model aircraft shall be in accordance with the Sporting Code and the pilots shall have the required qualification and accreditation.
- (b) The towing cable must be 25 metres long and must be fitted with a nylon loop at each end. A red pennant shall be attached to the cable to improve visibility.
- (c) The tug must be fitted with an altimeter.
- (d) The tugs' altimeters must be calibrated at the contest's opening and at the beginning of every day of contest. In the course of the day, the Contest Director may ask the tug pilots to perform a calibration flight in order to verify that releases are made at identical altitude.

### **5.Q.1.2.3 Radio equipment**

- (a) Every competitor must have at least two different frequencies available with a minimum 20 kHz spacing. The contest director shall decide which frequency shall be used by the competitors in order to establish flight groups of four pilots (or a minimum of three).

### **5.Q.1.3 Officials required for an F3Q contest**

For organisational purpose, an official may simultaneously hold several functions.

- (a) Contest Director: He runs the contest, manages the officials, ensures the smooth running of the contest in all respects, especially regarding compliance with rules and safety.
- (b) Timekeepers: They time the tasks and flights duration.
- (c) Field Marshall: He watches the model gliders at take-off and landing (tugs and gliders). He manages the whole runway security/safety.
- (d) Aerotow Pilots: They are in charge of towing the gliders up to release altitude.

## **5.Q.2 Contest technical and sporting rules**

### **5.Q.2.1 Definition of a round**

- (a) A round is made of two tasks, each of them scored as a percentage of the task winner's 1000 points.
  - (i) A speed flight task over 1,000 metres distance made up of two laps, each of two 250 m legs, between two parallel imaginary vertical planes 250 m apart.
  - (ii) A duration task of an 8-minute flight ending with a precision landing in a rectangular landing box 20 m wide and 40 m long.

### **5.Q.2.1.2 Organisation of a round**

- (a) The tasks may take place in any order within a round.
- (b) The previous round must be completed before beginning a new round.
- (c) The competitors' starting order is established by a draw before the beginning of any round.
- (d) The aerotow tugs release the gliders at 200 metres altitude. This altitude is automatically measured by an onboard altimeter.

- (e) The competitors are allowed two model gliders during a contest.
- (f) The two tasks of any round must be carried out with the same glider, without any change of elements, except in the case of a collision with another model glider in flight. However, the pilot can assemble a model made of components from the two gliders, provided the resulting model glider conforms to § 5.Q.1.2.1. The competitor must inform the Contest Director whenever he changes to another model glider. This change must be registered in the results list.
- (g) While on the ground, the only allowed changes are switching radio frequency, model wing and empennage angle of attack and centre of gravity position.
- (h) In flight, lifting area, angle of attack and centre of gravity may be altered by remote control.
- (i) Any in-flight altitude measuring device (altimeter or variometer) is forbidden.
- (j) During aerotow a competitor may choose any flight path he wants and shall instruct the tug pilot accordingly, provided the safety guidelines set by the Contest Director are followed.
- (k) Any competitor not taking part in a round receives a zero score for that round

#### **5.Q.2.1.3 Timing**

- (a) The flight's timing shall be done by one timekeeper with two stopwatches used simultaneously.
- (b) An official times a 2 minutes preparation time, starting the moment the competitor is called for his flight

#### **5.Q.2.1.4 Processing**

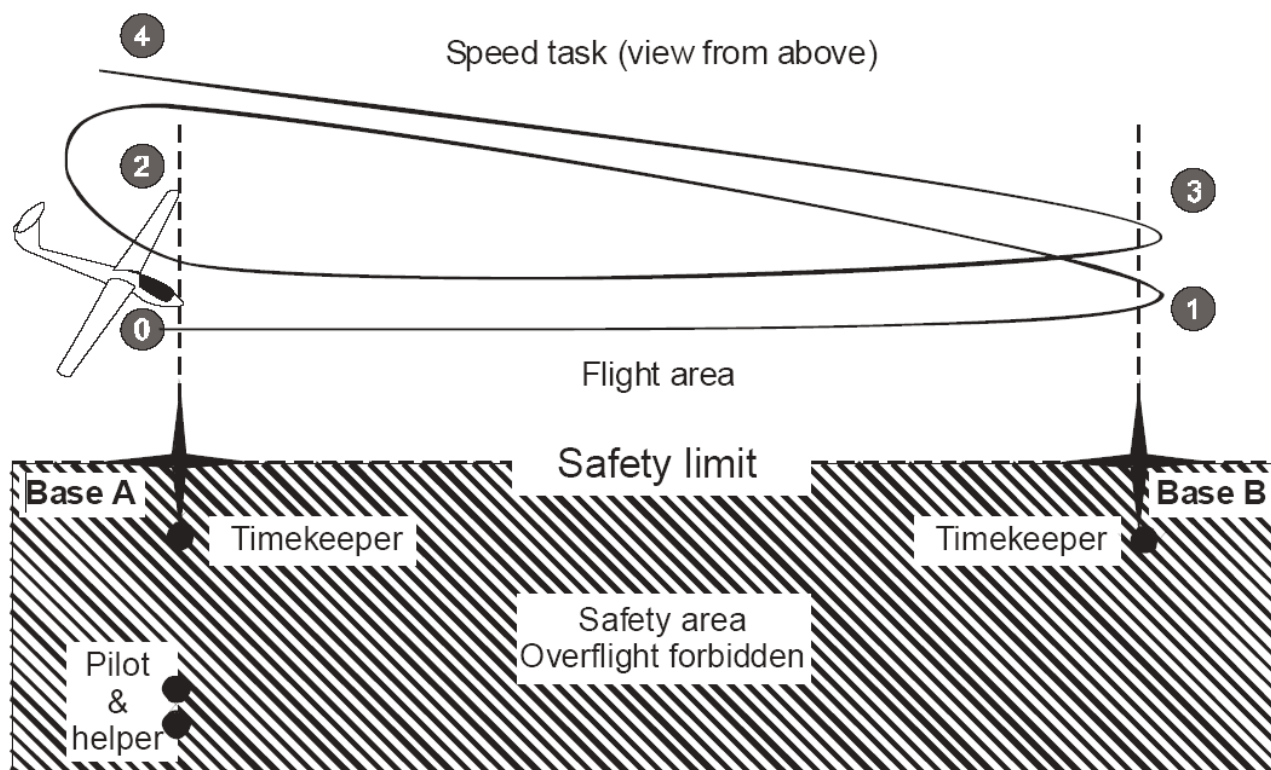
The weight of the model gliders must be checked at random before and after the speed and duration flights of each round. The gliders to be processed shall be chosen by means of a draw. The selected competitors shall be instructed at the end of a flight that they have to bring their glider to the weighing station. A minimum of 20% of the gliders must be checked during each round.

#### **5.Q.2.2 Speed task**

##### **5.Q.2.2.1 Definition of a speed task**

- (a) The speed task is flown over four legs between two parallel, virtual vertical planes ('A' & 'B') 250 m apart. The glider must cross the virtual vertical planes 5 times from initial entry to final exit for the flight to be valid.
- (b) Speed flight definition. The glider crosses the start plane 'A', toward 'B'; crosses the 'B' plane, flies back to plane 'A' and crosses this plane to complete a first lap. It then repeats this sequence to complete a second lap. The flight is complete at the moment the glider crosses plane 'A' out of the course at the end of the second lap. The flight is valid, even if the glider touches the ground during the timed part of the flight. A vertical plane is deemed to have been crossed when the nose of the glider has flown through it.
- (c) At both 'A' & 'B' vertical planes, a sighting device is used to assess the moment the glider nose crosses the vertical plane. An acoustic or optical system signals the crossing to the pilot.
- (d) A virtual vertical plane perpendicular to the turning planes limits the flight space.

Flights must be on the safety plane side defined by the Organiser and nobody shall be allowed on that side. If any part of the model crosses the safety plane in flight, the flight is scored zero.



#### 5.Q.2.2.2 Speed task organisation

- Competitors are allowed a 2-minute preparation time before take-off from the moment they are called for their flight. The attempt shall be deemed to have taken place if at the end of the preparation time, the model glider is not ready to take off.
- Only timekeepers are allowed to tell the glider's position relative to the starting plane at the competitor's request.
- The glider must cross the starting plane 'A' towards plane 'B' between 10 and 120 seconds after release from the tug. The timed part of the flight begins when, after release, the glider crosses the starting plane 'A' for the first time towards plane "B" and ends when the glider crosses the starting plane out of the course when completing the second lap.
- A timekeeper times the flight and may inform the competitor of the time remaining for crossing the starting plane A for the beginning of the timed portion of the flight..

#### 5.Q.2.2.3 Speed task attempt

- The competitor may choose to abort his flight and to make a second attempt at any time between the glider's take-off and the beginning of the timed part of the flight.

- (b) A flight is considered to have been attempted if :
  - (i) The glider is not ready to take off at the end of the 120 seconds preparation time;
  - (ii) The aerotow is interrupted for any reason due to the competitor;
  - (iii) Every competitor is allowed two attempts. If the first attempt is not successful, the second attempt is the one to be validated, whatever the result.

#### **5.Q.2.2.4 Speed task reflight**

A reflight may only be allowed by the Contest Director. The flight is then repeated if:

- (a) The flight has not been properly timed by the timekeepers.
- (b) The aerotow is interrupted for any reason outside of the competitor's responsibility.

#### **5.Q.2.2.5 Speed flight cancellation**

The flight is cancelled and the task is scored 0 (zero) if:

- (a) The glider is not ready to take-off at the end of the second attempt preparation time;
- (b) The glider in flight crosses the safety line;
- (c) The glider does not complete the two laps;
- (d) The glider loses any part during the timed portion of the flight.

#### **5.Q.2.2.6 Speed task scoring**

- (a) The time to complete the two laps course is recorded and rounded to the lowest tenth of second (example: 32.48 seconds = 32.4 seconds).
- (b) The best result from a group is awarded a 1000 points score. Other times are scored relative to the best score over a 1000 points scale (rounded down to one place after the decimal point).
- (c) If a speed task lasts two days, scores are computed separately for each day.
- (d) The partial score (PS) for each competitor's speed task is :
  - $PS = (1000 \times BT / CT)$
  - BT = Best time
  - CT = Competitor's time

Example : Best time (BT) = 32.0 seconds

  - The competitor timed 32.0 seconds scores 1,000 points.
  - The competitor timed 32.6 seconds scores 981.60 points (1,000 X 32 / 32.6).
  - The competitor timed 43.0 seconds scores 744.20 points (1,000 X 32 / 43).

#### **5.Q.2.3 Duration task**

##### **5.Q.2.3.1 Duration flight**

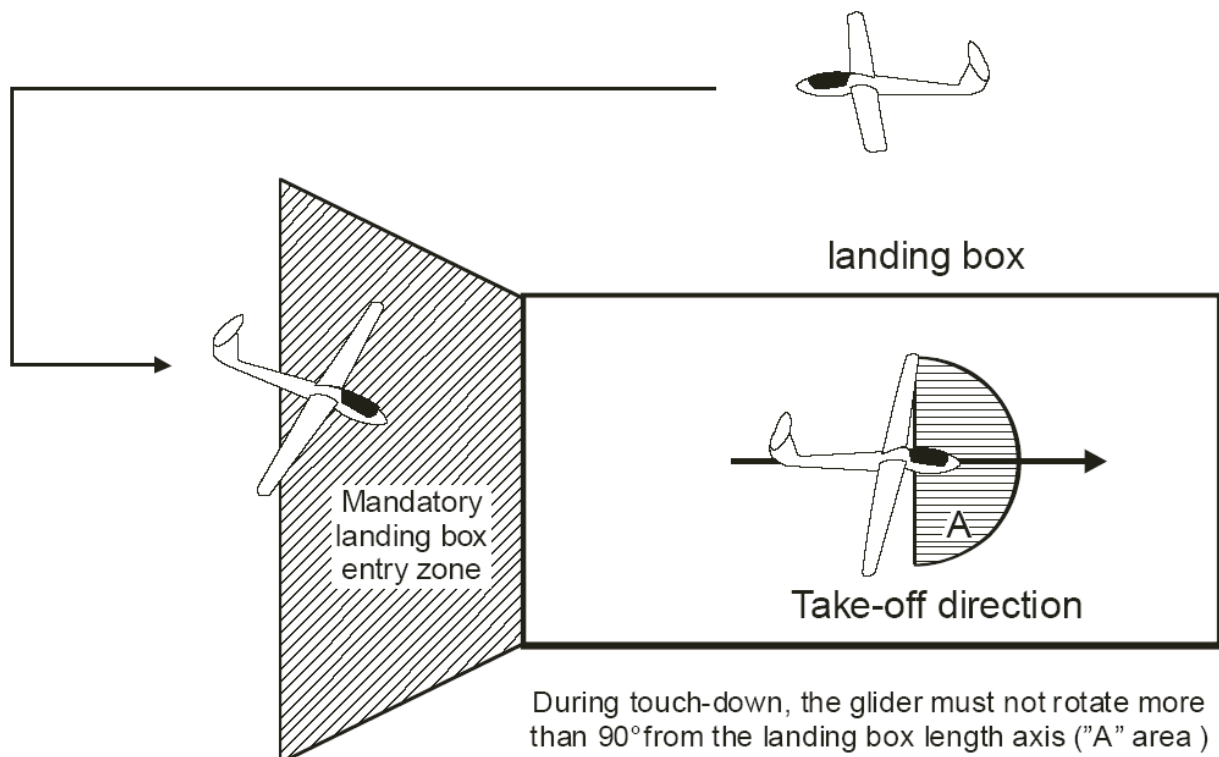
The aim of the duration task is to fly for 8 minutes after release from the tug aircraft at 200 m altitude. Landing must be in the same direction as take-off in a rectangular

landing box 40 m long and 20 m wide. The glider must not rotate more than 90° from the landing box length axis at touch down.

### 5.Q.2.3.2 Duration task organisation

- (a) Competitors are arranged in groups of 4 pilots. Groups of 3 competitors, but not less, may be setup to complete the roster.
- (b) The aerotow duration between take-off and glider release must not exceed 90 seconds.
- (c) The time span between the first and the last glider releases of any group must not exceed 10 minutes for a group of 4 competitors or 7 minutes 30 s for a group of 3 competitors.
- (d) Definition of the landing box : A 40 x 20 m rectangle marked on the ground and with its length parallel to the runway axis.
- (e) Definition of the landing point : The point located directly under the model nose after landing.
- (f) Definition of a correct landing : The glider must approach the landing box over its downwind side (see drawing).
- (g) Once the glider comes to rest at landing, its nose must be inside the landing box
- (h) After landing the glider must point to the take-off and landing direction and must not have rotated more than 90° relative to the landing box length axis.

Duration Take-off & Landing Box



### **5.Q.2.3.3 Duration flight attempt**

9a 0 A competitor may elect to abort his flight and make a second attempt at any time between his glider take-off and release.

- (b) A flight is also considered an attempt if :
  - i The glider is not ready to take-off before the end of the 2-minute preparation time;
  - ii The aerotow is aborted for any reason due to the competitor.

### **5.Q.2.3.4 Duration task reflight**

A reflight may only be allowed by the Contest Director. The flight is repeated if :

- (i) The flight has not been properly timed by the timekeeper.
- (ii) The aerotow is interrupted for any reason outside of the competitor's responsibility.
- (iii) The glider collides with an other model. In this case, both models must land in order to check their structural integrity.
- (iv) All the gliders of a group are not released within the allowed time span. In this case, the Contest Director may decide whether the entire group may start again immediately or at the end of the flight task. The group starts again for a single flight with no other attempt allowed.
- (v) If one competitor is responsible for the group reflight, his score is the one achieved in the reflight. The other competitors from the group score the best result from the two flights.

### **5.Q.2.3.5 Cancellation of a duration flight**

A flight is cancelled and the task scored 0 (zero) if :

- (a) The glider is not ready to take off for the second attempt within the allowed preparation time.
- (b) The glider overflies the safety areas at low altitude.

### **5.Q.2.3.6 Duration flight task scoring**

- (a) The flight time recorded is rounded down to the lower full second (example: 7:59:99 scores 7:59 s).
- (b) The timekeeper times the flight, from the glider release from the tug until :
  - (i) The moment the glider comes to rest after landing;
  - (ii) The glider collides with a fixed obstacle while in flight;
  - (iii) The glider disappears from the timekeeper's eyesight and it becomes obvious that it will not reappear. In case of doubt, only one of the timepieces may be stopped.
- (c) Flight scoring :
  - (i) Only full seconds of flight are taken into account up to a maximum of 480 (8 minutes).
  - (ii) Twenty additional seconds (bonus) are awarded if the landing is performed within the prescribed limits (5.Q.2.3.2.d, e & f).
- (d) No landing bonus is awarded if, in addition to (b) above, the glider :
  - (i) Comes to land into the landing box over a long side;

- (ii) Touches the pilot or his helper during landing;
  - (iii) Comes to a rest inverted;
  - (iv) Rotates more than 90° from the landing box length axis.
- (e) Deducted time :
- (i) When the flight duration exceeds 480 seconds (8 minutes), 1 second is deducted for every full second of flight in excess of 480 s (example: 8:10s flight scores 480 - 10 = 470 seconds).
- (f) Penalty points
- (i) 200 penalty points are deducted from the score if the glider lands and comes to a rest more than 100 metres from the landing box centre.
  - (ii) 200 penalty points are deducted from the score if any part of the glider is lost during the timed part of the flight.
- (g) Calculation of the task score :
- (i) The best result from a group is awarded 1,000 points score, other results are scored as a percentage of the best score over a 1,000.0 points scale (down to one decimal).
  - (ii) Penalty points are deducted from the competitor's task score.

$$\text{Points} = (1000 \times (\text{TC} + \text{LB}) / (\text{BTC} + \text{LB})) - \text{PP}$$

CT = Competitor's time

LB = Landing Bonus

BTC = Best time of the group

PP = Penalty Points

Example 1 - Group 1 : Best time is (480 + 20)

Competitor	score	Calculation	result
1	8 min + landing bonus	$1,000 \times (480 + 20) / (480 + 20)$	1,000.0
2	7 min 50 s + landing bonus	$1,000 \times (470 + 20) / (480 + 20)$	980.0
3	8 min 10 s + landing bonus	$1,000 \times (480 + 20 - 10) / (480 + 20)$	980.0
4	8 min + landing bonus & loss of any part of the glider	$[1,000 \times (480 + 20) / (480 + 20)] - 200$	800.0

Example 2 – Group 2 : Best time is (480+ 0)

Competitor	score	Calculation	result
1	6 min + no landing bonus	$1,000 \times (360 + 0) / (480 + 0)$	750.0
2	5 min 50 s + landing bonus	$1,000 \times (350 + 20) / (480 + 0)$	770.8
3	5 min 10 s + landing bonus	$1,000 \times (310 + 20) / (480 + 0)$	687.5
4	8 min & landing + 100m	$[1,000 \times (480 + 0) / (480 + 0)] - 200$	800.0

### **Q.3**

#### **Final classification**

- (a) The score of any round is the sum of the speed and duration scores.
- (b) The competitor's score is the sum of the rounds scores.
- (c) The final score does not take into account :
  - (i) The lowest round score, if three rounds or more are flown;
  - (ii) The two lowest round scores, if five rounds or more are flown;
  - (iii) The three lowest round scores, if nine rounds or more are flown.

## 7.7 THERMAL STAND OFF SCALE GLIDER

### 7.7.1 Object

To provide the opportunity for equitable competition between Scale Model Gliders flown on flat sites.

### 7.7.2 Procedure

- (a) The competition will be in two parts, static and flying.
- (b) Marks for both static and flying will be awarded from 0 to 10 and will then be multiplied by the appropriate M factor.
- (c) Entrants will supply the following items:
  - (i) A signed declaration of the origin of the model stating which category in section 7.7.3.(b) is appropriate.
  - (ii) A three view drawing with dimensions.
  - (iii) Colour photographs or other means of identifying accuracy of colour, markings and appearance.
- (d) Entrants may not discuss details of their models with the judges. Judges are instructed to disregard all but the information submitted in written form under section 7.7.2.(c).
- (e) Models will be viewed from outside a circle of 15 ft. radius during static judging. Cockpit or interior cabin detail will not be taken into consideration, except as it affects the accuracy of outline.

### 7.7.3 Static Judging

- (a) The model will be marked for:
  - (i) Accuracy of outline..... M = 7
  - (ii) Complexity of structure ..... M = 5
  - (iii) Finish, colour and markings ..... M = 6
  - (iv) Craftsmanship..... M = 5
- (b) The above marks awarded will then be subject to multiplication by a 'K' factor to reflect the entrant's involvement in its construction.
  - (i) Ready made..... K = 0.5
  - (ii) Built substantially from a ready made kit ..... K = 0.8
  - (iii) Built from a kit of parts but with a substantial amount of work by the entrant ..... K = 0.85
  - (iv) Built from scratch from other persons plans ..... K = 0.9
  - (v) Built from scratch from own design..... K = 1.0
- (c) The maximum score from the static section is 230

### 7.7.4 Flying Section

- (a) Launching may be carried out by hand tow, power winch or aero-tow as decided by the Contest Director and, preferably, published with the notification of the event.

- (b) The competitor will make two flights in which he will attempt to accumulate a total time of 8 minutes. The 8 minutes may be scored on one flight or the accumulation of two flights with no penalty for overflying.
- (c) The competitor will be awarded one point for every two seconds flown. The maximum number of marks is 240.
- (d) During the two flights the following manoeuvres will be scored by the judges:
  - (i) Take off (ROG or hand launch)(both flights)..... M = 2
  - (ii) Option 1 ..... M = 4
  - (iii) Option 2 ..... M = 4
  - (iv) Option 3 ..... M = 4
  - (v) Approach and landing (both flights) ..... M = 2

Options may be any recognised manoeuvre appropriate to the type, acceptable to the judges and nominated to them beforehand. The options are performed only once but may be attempted at any time during the two flights.

The maximum number of points from the manoeuvres section is 200.
- (e) A repeat flight attempt will be permitted only in the case of towline breakage or if the flight was not judged or timed through the fault of the judges/time-keepers.

### 7.7.5 Scoring

- (a) The competitor's final score is the addition of all points achieved during the competition after the appropriate multiplication and correction factors have been applied.
- (b) Maximum possible marks from all sections is 670.
- (c) In the event of a tie the flying section is repeated.

### 7.7.6 Judges

Where possible at least two judges shall be used and preferably one of these should be from outside of the model field, i.e. full size glider pilot, etc..

## 7.8 POWER SCALE SOARING (PSS)

### 7.8.1 Object

To provide a competition for un-powered slope soaring models of aircraft originally powered by rocket, piston or jet engines.

### 7.8.2 Models

Powered gliders are not permitted, otherwise there are no restrictions on the choice of original aircraft or the scale adopted.

### 7.8.3 Procedure

- (a) The competition shall consist of a static section and a flying section. The static section shall be performed first
- (b) Two rounds of the flying section shall be flown.

### 7.8.4 Static Section

- (a) Competitors shall supply the following items:
  - (1) A three view drawing of the original aircraft drawn to a scale not smaller than 1/72 scale (1 in. = 6 ft.).
  - (2) Colour photographs or other means of identifying accuracy of colour, markings and form.
- (b) Competitors shall not discuss details of their models with the judges. Judges shall disregard any comments made by the competitors about the details of the models.
- (c) Static Judging.
  - (1) The model shall be judged from outside a circle of 10 metres diameter by two judges.
  - (2) The competitor or an assistant shall be required to lift the model and display it in all three view axes for evaluation by the judges.
  - (3) The judges shall compare the information provided (as in 7.8.4.(a).(1 and 2) above) with the model.
- (d) Scores in the static section shall be awarded as follows:
  - (1) Accuracy of outline..... 80
  - (2) Accuracy of form (i.e. correct shape of compound curves)..... 60
  - (3) Accuracy of colour and markings..... 30
  - (4) Accuracy of detail..... 20
  - (5) Accuracy of finish..... 10
- (e) The total aggregate score from 7.8.4.(d).(1 to 5) shall be factored by a 'K' factor to reflect the competitor's involvement in the construction of the model.
  - (1) Ready made..... K = 0.5
  - (2) Built substantially from a ready made kit ..... K = 0.8
  - (3) Built from a kit of parts but with a substantial amount of work done by the competitor..... K = 0.85
  - (4) Built from scratch from another person's plans ..... K = 0.9

- (5) Built from scratch from own plans..... K = 1.0
- (f) The maximum score in the static section is 200.

### 7.8.5 Flying Section

- (a) Each flight shall be of between 4 and 6 minutes duration. The flight time shall start when the model is hand launched and shall stop when the model comes to rest during the official landing manoeuvre. A 20 point penalty shall be awarded if the total flight time is either less than 4 minutes or greater than 6 minutes.
- (b) All parts of the model judged in the static section shall remain attached to the model during the flying section. Transparent or translucent fairings may be added to the air intakes of models of jet powered or ducted fan aircraft.
- (c) Re-launching is allowed but the flight time will not be counted during the non-airborne periods.
- (d) Four nominated manoeuvres shall be performed in each flight. The manoeuvres shall be presented in front of the judges and performed cross-wind to obtain a high score. The choice of manoeuvres and the manner in which the manoeuvres are performed shall be representative of the flying characteristics of the original aircraft. The manoeuvres shall be nominated before the start of the flight and may be performed in any order. The start of the manoeuvre shall be signalled by the competitor or a helper.
- (e) The manoeuvres shall be judged by two judges. Each manoeuvre shall score a maximum of 10 points. The nominated manoeuvres shall be selected from the following list:
  - (1) Optional nominated manoeuvre
    - (2) Stall turn to the right
    - (3) Horizontal circle
    - (4) Horizontal eight
    - (5) Inside loop
    - (6) Chandelle
    - (7) Axial roll
    - (8) Five seconds inverted flight
    - (9) Reversal
    - (10) Three turn spin
- (f) Each flight shall be terminated by with a landing which is to be judged. The contest director shall position the landing area in a safe position which need not be immediately adjacent to the flying area. If the landing area is not near to the flying area then a judge will be required to remain at the landing area to provide for the rapid progress of the competition.

The landing manoeuvres shall be scored as follows:

- (1) Square approach ..... maximum 6
- (2) Landing within a circle of 40 metres diameter..... 20
- (3) Quality of final approach and touch down..... maximum 14
- (g) Smooth flying which demonstrates the flying characteristics of the original aircraft shall be judged for the periods of flight time between the manoeuvres.

Points awarded for smooth presentation of flight ..... maximum 20

(h) The maximum score from each round of the flying section is 100 points.

### **7.8.6 Scoring**

- (a) The competitor's final score is the addition of all points achieved during the competition including the deduction of any penalty points.
- (b) The maximum possible score is 400 points.
- (c) If there is a tie for first place then one round of the flying section shall be repeated.

## **7.26 POWER SCALE SOARING (PSS) CLASS 2**

### **7.26.1 Object**

To provide a PSS event suitable for general club use. The points awarded by the judges during the three phases of the competition are arranged so that there is a bias of just over three to one in favour of flight performance over static marking.

### **7.26.2 Eligible Models**

Slope soaring models of full size piston, jet or rocket propelled aircraft, excluding powered gliders such as the Falke or Fournier.

### **7.26.3 Phase One - Static Judging**

Judging must be done from outside a circle of 20 ft radius with the model placed at its centre. The competitor may be required to present various views of the model to the judges.

The documentation required will be a three view of the type modelled, no smaller than six inches square, plus two colour photographs, magazine pictures or similar showing the colour scheme of the actual aircraft modelled.

The maximum number of points awarded by the judges will be as follows:

Scale fidelity .....	20
Colour scheme .....	20
Workmanship and finish .....	20

### **7.26.4 Phase Two - Nominated Flight**

This flight will consist of three compulsory and two nominated manoeuvres plus a judged

approach and landing

The maximum number of points awarded by the judges will be as follows:

Horizontal 360° turn.....	20
Horizontal figure eight (parallel to slope).....	20
Straight and level flight (parallel to slope) .....	20
Nominated manoeuvre (1).....	20
Nominated manoeuvre (2).....	20
Square approach and landing .....	20

The two nominated manoeuvres must be applicable to the type modelled.

After the completion of the manoeuvres the competitor will have three minutes to land. Failure to land within this time will result in approach and landing marks being forfeited.

### **7.26.5 Phase Three - Free Style Flight**

The competitor will perform a 'free style' flight of not more than five minutes, the flight patterns and manoeuvres to simulate the performance of the full size aircraft modelled.

If the model is still flying at the end of the five minutes, the judges flight marking will terminate and the pilot will be asked to land. On the competitor calling 'landing' the approach and landing will be marked as normal. If the competitor has not landed within three minutes of being requested to do so, all approach and landing marks will be forfeited.

Manoeuvres must be clearly nominated to the judges, naming the manoeuvre and indicating its start and finish.

The maximum number of points awarded by the judges will be as follows:

Scale flight .....	40
Continuity .....	20
Square approach and landing .....	25

### **7.26.6 Final Classification**

- (a) The model with the highest aggregate of marks is the winner
- (b) In the case of a tie, a further phase three (free style) flight will be made.
- (c) In all cases the judges decisions are final.

## 7.32 R/C SOARING WORLD CUP

### 1. Classes

The following separate classes are recognised for World Cup competition: F3B and F3J.

### 2. Competitors

All competitors in the open international contests are eligible for the 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. In the contests competitors of at least two different nations must take part.

Points Allocation

Class F3B and F3J

Points are to be allocated to competitors at each contest according to their placing in the results and to the number of participants as given in the following table and the conditions given below:

Placing	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
Placing	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

The number of competitors considered for the awarding of points is limited to those who completed at least one round (all three tasks).

The number of points awarded depends on the number of competitors. For every two competitors lacking to 51 one point is deducted from the points given in the table.

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).

### 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 RC-Soaring 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 model aircraft 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.6.5. 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 RC-Soaring Subcommittee to rule on any protest concerning the World Cup during a year. Any protest must be submitted in writing to the RC-Soaring Sub-committee Chairman and must be accompanied by a fee of 35 Euros. In the event of the Jury upholding the protest, the fee will be returned.

## Appendix (1)

Notes for Organisers of F3J and 100S Thermal Duration Contests

### 1. Slot Time Signals

The organisers must ensure that each competitor has no doubt about the precise second that the slot time starts and finishes. Visual indication may be by raising of a flag or coloured board situated near the contest control. Audible indication may be by motor horn, aerosol horn or bell etc.. It should be remembered that sound does not travel far against the wind; care must therefore be taken with the positioning of the noise source.

### 2. The Matrices

- (a) The method by which each competitor is given his/her competition number from the matrix is left to the organisers.
- (b) Once the contest has started, neither the matrix table or competition number must be changed.
- (c) Sets of matrix tables to cover the most popular sizes of contests are laid out in appendix (2).

### 3. Percentage Slot Scores by Use of Pocket Calculator

Dividing 1000 by the top slot score gives a result that is entered into the memory as a constant, thus;

**Step 1** Switch on calculator and ensure that display and memory are clear.

**Step 2** Key 1000, Key 'divide by', Key Top Slot Score, Key =, Key M+

To obtain the percentage slot scores, each lower score is then multiplied by this constant thus;

**Step 3** Key Slot Score, Key 'multiply by', Key MR, Key =

The result, ignoring all figures after the decimal point, is the corrected score for that competitor in that slot.

**Step 4** As a final check, repeat step 3 using the top slot score (i.e. Top slot score times MR = ). The answer should be 1000.

### 4. Time-keepers Duties

Organisers must make sure that all who are to act as time-keepers are fully aware of just how important their duties are and to make certain that they are conversant with the rules, particularly those that require quick positive action in order not to jeopardise a competitors chances in the competition.

If a transmitter control compound is in use, the time-keepers will be responsible for handing transmitters to competitors prior to the start of the slot time and for returning them to control at the end of the slot or flight, whichever is earlier.

The organisers must ensure that an official is nominated to note any competitor who over-flies the end of the slot time and to time the excess time

### USE OF THE MATRIX

Depending on the number of competitors in the contest and the frequencies available the organisers must sort the competitors into frequency groups as noted on the selected matrix. Note that at this stage some competitors may have to change their radio frequencies.

The organisers can then assign each entrant a competition number from the matrix for Round 1 of the contest, the competitor keeping this number for the remainder of the contest.

For example, in a competition with 25 entrants using Matrix (a), a competitor may be grouped into frequency group (C) and then given competition number (13).

He then flies: Round 1 in Slot 3 - Round 2 in Slot 1 - Round 3 in Slot 4

## Appendix (2)

## MATRIX TABLES

(a) 25 competitors flying five slots per round

ROUND 1 FREQUENCY GROUP					
SLOT	A	B	C	D	E
1	1	2	3	4	5
2	6	7	8	9	10
3	11	12	13	14	15
4	16	17	18	19	20
5	21	22	23	24	25

ROUND 2 FREQUENCY GROUP					
SLOT	A	B	C	D	E
1	1	7	13	19	25
2	6	12	18	24	5
3	11	17	23	4	10
4	16	22	3	9	15
5	21	2	8	14	20

ROUND 3 FREQUENCY GROUP					
SLOT	A	B	C	D	E
1	1	12	23	9	20
2	6	17	3	14	25
3	11	22	8	19	5
4	16	2	13	24	10
5	21	7	18	4	15

(b) 36 Competitors Flying 6 Slots per Round

<b>ROUND 1</b>							<b>FREQUENCY GROUP</b>						
SLOT	A	B	C	D	E	F							
1	1	2	3	4	5	6							
2	7	8	9	10	11	12							
3	13	14	15	16	17	18							
4	19	20	21	22	23	24							
5	25	26	27	28	29	30							
6	31	32	33	34	35	36							

<b>ROUND 2</b>							<b>FREQUENCY GROUP</b>						
SLOT	A	B	C	D	E	F							
1	1	8	15	22	29	36							
2	7	14	21	28	35	6							
3	13	20	27	34	5	12							
4	19	26	33	4	11	18							
5	25	32	3	10	17	24							
6	31	2	9	16	23	30							

<b>ROUND 3</b>							<b>FREQUENCY GROUP</b>						
SLOT	A	B	C	D	E	F							
1	1	32	27	22	17	12							
2	7	2	33	28	23	18							
3	13	8	3	34	29	24							
4	19	14	9	4	35	30							
5	25	20	15	10	5	36							
6	31	26	21	16	11	6							

(c) 49 Competitors Flying 7 Slots per Round

<b>ROUND 1</b>								<b>FREQUENCY GROUP</b>							
SLOT	A	B	C	D	E	F	G								
1	1	2	3	4	5	6	7								
2	8	9	10	11	12	13	14								
3	15	16	17	18	19	20	21								
4	22	23	24	25	26	27	28								
5	29	30	31	32	33	34	35								
6	36	37	38	39	40	41	42								
7	43	44	45	46	47	48	49								

<b>ROUND 2</b>		<b>FREQUENCY GROUP</b>					
SLOT	A	B	C	D	E	F	G
1	1	9	17	25	33	41	49
2	8	16	24	32	40	48	7
3	15	23	31	39	47	6	14
4	22	30	38	46	5	13	21
5	29	37	45	4	12	20	28
6	36	44	3	11	19	27	35
7	43	2	10	18	26	34	42

<b>ROUND 3</b>		<b>FREQUENCY GROUP</b>					
SLOT	A	B	C	D	E	F	G
1	1	44	38	32	26	20	14
2	8	2	31	39	33	27	21
3	15	9	24	46	40	34	28
4	22	16	17	4	47	41	35
5	29	23	10	11	5	48	42
6	36	30	3	18	12	6	49
7	43	37	45	25	19	13	7

(d) 64 Competitors Flying 8 Slots per Round

<b>ROUND 1</b>		<b>FREQUENCY GROUP</b>						
SLOT	A	B	C	D	E	F	G	H
1	1	2	3	4	5	6	7	8
2	9	10	11	12	13	14	15	16
3	17	18	19	20	21	22	23	24
4	25	26	27	28	29	30	31	32
5	33	34	35	36	37	38	39	40
6	41	42	43	44	45	46	47	48
7	49	50	51	52	53	54	55	56
8	57	58	59	60	61	62	63	64

<b>ROUND 2</b>		<b>FREQUENCY GROUP</b>						
SLOT	A	B	C	D	E	F	G	H
1	1	10	19	28	37	46	55	64
2	9	18	27	36	45	54	63	8
3	17	26	36	44	53	62	7	16
4	25	34	43	52	61	6	15	24
5	33	42	51	60	5	14	23	32
6	41	50	59	4	13	22	31	40
7	49	58	3	12	21	30	39	48
8	57	2	11	20	29	38	47	56

<b>ROUND 3</b>		<b>FREQUENCY GROUP</b>						
SLOT	A	B	C	D	E	F	G	H
1	1	58	51	44	37	30	23	16
2	9	2	59	52	45	38	31	24
3	17	10	3	60	53	46	39	32
4	25	18	11	4	61	54	47	40
5	33	26	19	12	5	62	55	48
6	41	34	27	20	13	6	63	56
7	49	42	35	28	21	14	7	64
8	57	50	43	36	29	22	15	8

(e) 81 Competitors Flying 9 Slots per Round

<b>ROUND 1</b>									
<b>FREQUENCY GROUP</b>									
SLOT	A	B	C	D	E	F	G	H	I
1	1	2	3	4	5	6	7	8	9
2	10	11	12	13	14	15	16	17	18
3	19	20	21	22	23	24	25	26	27
4	28	29	30	31	32	33	34	35	36
5	37	38	38	40	41	42	43	44	45
6	46	47	48	49	50	51	52	53	54
7	55	56	57	58	59	60	61	62	63
8	64	65	66	67	68	69	70	71	72
9	73	74	75	76	77	78	79	80	81

<b>ROUND 2</b>									
<b>FREQUENCY GROUP</b>									
SLOT	A	B	C	D	E	F	G	H	I
1	1	11	21	31	41	51	61	71	81
2	10	20	30	40	50	60	70	80	9
3	19	29	39	49	59	69	79	8	18
4	28	38	48	58	68	78	7	17	27
5	37	47	57	67	77	6	16	26	36
6	46	56	66	76	5	15	25	35	45
7	55	65	75	4	14	24	34	44	54
8	64	74	3	13	23	33	43	53	63
9	73	2	12	22	32	42	52	62	72

<b>ROUND 3</b>									
<b>FREQUENCY GROUP</b>									
SLOT	A	B	C	D	E	F	G	H	I
1	1	74	66	58	50	42	34	26	18
2	10	2	75	67	59	51	43	35	27
3	19	11	3	76	68	60	52	44	36
4	28	20	12	4	77	69	61	53	45
5	37	29	21	13	5	76	70	62	54
6	46	38	30	22	14	6	79	71	63
7	55	47	39	31	23	15	7	80	72
8	64	56	48	40	32	24	16	8	81
9	73	65	57	49	41	33	25	17	9

## (f) 100 Competitors Flying 10 Slots per Round

<b>ROUND 1</b>		<b>FREQUENCY GROUP</b>								
SLOT	A	B	C	D	E	F	G	H	I	J
1	1	2	3	4	5	6	7	8	9	10
2	11	12	13	14	15	16	17	18	19	20
3	21	22	23	24	25	26	27	28	29	30
4	31	32	33	34	35	36	37	38	39	40
5	41	42	43	44	45	46	47	48	49	50
6	51	52	53	54	55	56	57	58	59	60
7	61	62	63	64	65	66	67	68	69	70
8	71	72	73	74	75	76	77	78	79	80
9	81	82	83	84	85	86	87	88	89	90
10	91	92	93	94	95	96	97	98	99	100

<b>ROUND 2</b>		<b>FREQUENCY GROUP</b>								
SLOT	A	B	C	D	E	F	G	H	I	J
1	1	12	23	34	45	56	67	78	89	100
2	11	22	33	44	55	66	77	88	99	10
3	21	32	43	54	65	76	87	98	9	20
4	31	42	53	64	75	86	97	8	19	30
5	41	52	63	74	85	96	7	18	29	40
6	51	62	73	84	95	6	17	28	39	50
7	61	72	83	94	5	16	27	38	49	60
8	71	82	93	4	15	26	37	48	59	70
9	81	92	3	14	25	36	47	58	69	80
10	91	2	13	24	35	46	57	68	79	90

<b>ROUND 3</b>		<b>FREQUENCY GROUP</b>								
SLOT	A	B	C	D	E	F	G	H	I	J
1	1	92	83	74	65	56	47	38	29	20
2	11	2	93	84	75	66	57	48	39	30
3	21	12	3	94	85	76	67	58	49	40
4	31	22	13	4	95	86	77	68	59	50
5	42	32	23	14	5	96	87	78	69	60
6	51	42	33	24	15	6	97	88	79	70
7	61	52	43	34	25	16	7	98	89	80
8	71	62	53	44	35	26	17	8	99	90
9	81	72	63	54	45	36	27	18	9	100
10	91	82	73	64	55	46	37	28	19	10

# NOTES

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