



BARCS Rules 2018

(including 2017 BARCS AGM Rule changes)

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BARCS STANDARD COMPETITION RULES

Providing General principles, model, league and winch definitions. (Excluding Specific Flying Rules)

1 Flying Site

Thermal competitions must be held on a site having reasonably level terrain which will minimise the possibility of slope and wave soaring. Slope soaring events obviously require a suitable into wind slope site with a suitable landing area

2 BARCS League Competitions

1. League Status

- a) A competition will be granted League status in advance at the discretion of the BARCS Competition Secretary.
- b) the BARCS Competition Calendar contains details of the current season's BARCS League events, and is published each spring in 'The BARCS Newsletter' and on the BARCS web site.
- c) A competition must be open to all BARCS members, to be granted League status.

2. Appropriate Rules

- a) A league competition must be run to the appropriate rules for the class of competition being held.
- b) The BARCS Competition Secretary, or in his absence on the day, the Contest Director, is empowered to endorse minimal deviations from only those rules marked with an asterisk (*), to suit the prevailing circumstances.

3. Minimum number of entries to qualify as a BARCS League Competition

For all classes viz: Open, Multi-launch, and (BARCS) F3J, 100S and HLG events a minimum of 8 pilots must start the competition for it to qualify for league scoring purposes.

4. Competition declared void in respect of the leagues

For Open, Multi-launch, 100S, F3J and HLG events 3 rounds must be completed for the event to be valid for league purposes.

3 Model Characteristics

1. General Model requirements

The model/models flown must comply with the characteristics listed below, and also with the additional 'Class Specific Model Characteristics' for the class being entered & flown. The Standard Model Characteristics are as defined by the FAI. An "Open" or F3J model is defined by these definitions:-

Dimensions/ Weight/ Loadings

Maximum surface area	150 sq. decimetres (2325 sq..in)
Maximum flying weight	5 kilograms (11.023 lb)
Maximum surface loading	75 grams/sq. decimetre (24.51 oz/sq. ft)
Minimum surface loading	12 grams/sq. decimetre (3.95 oz/sq. ft)

For Hand Launched Gliders (HLGs) the maximum wing span is 1500 mm and the maximum weight is 600 g.

In addition, "Open" electric launched models must meet the above criteria but also have a maximum wing span of 4 metres.

2. RES Definitions

In addition to conforming to the general model requirements, an RES model must meet the following criteria:

- a) Directional control shall be by the use of rudder and elevator only.
- b) 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.

3. 100S Definitions

In addition to conforming to the general model requirements, an 100S model must meet the following criteria:

- a) Maximum projected span of wing 100".
- 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 above.

4. Classic Definitions

In addition to conforming to the general model requirements, a Classic model must be a glider design for which documentary evidence exists to show that the particular version of the prototype being flown was in existence before 31st December 1990. The object of these rules is to provide for the equitable competition of accurate replicas of the classic radio controlled glider designs ,

from the early days of radio controlled thermal soaring in the 1970's & through the 1980's. The intention of flying these models in BARCS League events is to provide additional enjoyment and sport; there is not a requirement to submit them to "static" authenticity judging but, in the spirit of the competition, it is incumbent on competitors to set themselves suitable standards of adherence to the original designs.

- a) Kits, Plan Packs and Commercially produced Plans - a copy of the plan should be available and for all Others - a copy of the SOARER or Magazine - article / 3 view / photograph, with enough details shown should be available to convince the CD. If a query on eligibility is raised by a CD, it is acceptable to supply such evidence retrospectively. Note: The popular John Stevens "Eliminator" models do not qualify as Classics as the original prototypes were designed later than the cut-off date. However many other popular models from the 1980's such as the Dick Edmonds "Algebra" series do qualify.
- b) The model must replicate the original styling and appearance and comply with the spirit of the event.

Airfoil	must be the same as on the original
Flying surface	must be the same as on the original
Fuselage	form or styling in outline both inside and plan views must not be changed
Wing Mounting	type of mounting i.e. bolt / steel joiners / rubber bands must be as the original.
Dihedral	must be exactly as on the original
Model Size	must be exactly as the original. Scaling up or down is not permitted
Tailplanes	may be made removable or bolt-on instead of permanently mounted, providing that the assembled position replicates the original and the visible architecture is unchanged.

Basic construction must be as the original e.g. - open bay wing structure, wood or fibreglass fuselage as appropriate (wooden fuselage shaped to correct outlines may be used if fibreglass is no longer available) Foam wings may not be used, unless it can be proved that they were shown on the original plan/ or supplied with the original kit. Interior, non-visible, structural modifications may be made for the purpose of additional strength. For example - the substitution of spruce/ plywood for internal balsa members, thicker gauge wire joiners.

Top surface Spoilers /Airbrakes may be added to the wing upper surface, as long as the plans do not call for any other glide control system. If the plans do have a glide control system, it must be the one used and shall not be deviated from. If Spoilers/ Airbrakes are added they must have minimal effect upon the styling and amount of sheeting

5. Vintage Definitions

In addition to conforming to the general model requirements, a Vintage model must be a glider design for which documentary evidence exists to show that a prototype was in existence before 31st December 1955. The intention of flying these models in BARCS League events is to provide additional enjoyment and sport; there is not a requirement to submit them to "static" authenticity judging but, in the spirit of the competition, it is incumbent on competitors to set themselves suitable standards of adherence to the original designs.

- a) Modifications which may be necessary to allow for the control of the model by the use of radio - i.e. to dowels, tail plane and rudder etc. - are permitted. Any changes to be discreet and not to alter the general appearance of the model.
- b) Changes in rigging angles are permitted and the original wing section can be substituted with another, providing such section was in use at the time of the models design or publication
- c) The substitution of spruce for internal structural members for the purpose of additional strength is permitted.
- d) The discreet provision of hatches for radio access is permitted.
- e) The design may be scaled up or down but all the original proportions of the model must be retained
- f) As scaling up and down is allowed, with control surfaces permitted to be added and almost zero radio control was then available, every glider design since the start of aeromodelling, published or kitted by December 1955, qualifies as vintage.

6. Tail-less definitions

In addition to conforming to the general model requirements, a Tail-less model must have no conventional tailplane surface, relying upon a pitch control surface or surfaces attached to the wing Alternatively a "Tail-less" model may be a canard design which is defined as having a flying surface at the front and (again) no conventional tailplane surface.

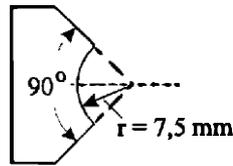
7. Restricted Electric Model Definition

A Restricted electric model shall have either a wing span not exceeding 2 metres (with no limitations on the control surfaces or functions) OR alternatively have a wing span not exceeding 100 inches but with control

functions (other than the motor control) limited to rudder, elevator and spoiler only. The control functions for the flying surfaces are thus the same as for a 100S model.

8. Nose Radius

The nose radius of all models shall be not less than 7.5mm (0.295 in) radius measured tangentially at all intersecting surfaces. This figure is changed to 5.0mm for HLGs due to their smaller size and lighter weight.



Nose Radius Template

9. Ballast

All ballast must be carried internally, fastened securely within the airframe.

4 Radios – General Requirements

1. Radios shall be made to operate simultaneously with other systems on the same frequency band. The separation capability shall be 20 KHz for 27 MHz systems, 10 KHz for 35 MHz systems and 25 KHz for UHF systems. For competition and general flying, the recommended separation is 50 KHz for 27 MHz and UHF systems and 20 KHz for 35 MHz systems. Radios using the 2.4GHz technology are allowed indeed encouraged (and increasingly used) but competitors must conform with whatever transmitter checking procedures are in place
2. Any competitor operating equipment transmitting outside the UK licensed frequency bands at a BARCS League event shall be disqualified from the League for that year.
3. Any device, with the exception of safety devices indicating battery state, for the transmission of information from the model to the pilot is prohibited.

5 Control of Transmitters

1. * The Contest Director will not start the competition flying until all competitors have checked ALL transmitters with the organisers. **Note** it is now normal for transmitters **not** to be handed in, indeed with 2.4GHZ transmitters no check is relevant. With few now flying on the older frequencies the CD may waive this.
2. * Failure to hand in a transmitter for checking (if required) before the start of the contest may result in the competitor forfeiting his/her first round flight.
3. Any test transmission during the contest without permission of the Contest Director is forbidden and could result in disqualification.
4. * If required by the CD, the competitor must hand over his/her transmitter to the designated official immediately after finishing the flight.
5. Competitors radiating a frequency other than that entered in the competition matrix shall be excluded from the competition.

6 Winch Requirements

1. 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.
2. The power source shall be a 12 volt lead/acid battery.
3. 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.
4. 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).
5. The motor must not be cooled, and the battery must not be heated

6. 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.
7. 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.
8. 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).
9. The battery must stay unloaded for at least two minutes after any previous test or a launch before being measured.
10. 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.
11. 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.
12. 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.
- 13.* The organiser must appoint at least one processing official, who will process any winch which for which a certificate of conformance is not available.

14. 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:-
- a) Amps drawn when motor stalled
 - b) Battery voltage when motor stalled
 - c) Battery unloaded voltage
 - d) The total resistance of the system.
 - e) The battery type and spec.
 - f) Motor type.
 - g) Test number
15. 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.
16. 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.
17. For most smaller competitions, the test apparatus is not likely to be on site and testing at the event for conformance with the above detailed requirements is therefore not practical. CDs should therefore exercise common sense and discretion and regard any winches for which certificates of conformance are not available, as acceptable for use, provided the CD believes that the winch and battery in use are in accordance with the intent of the above detailed requirements.

7 Use of Models

1. A competitor may use a maximum of three models.
2. Component parts of the three models may be interchanged but not with those of other competitors.

8 Ownership of Models

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

9 Protest

1. Any protests are to be made in the first instance to the Contest Director, accompanied by a protest fee equal to the entry fee as soon as possible.
2. Protests against the Contest Director's decision shall be addressed in writing to the BARCS committee and sent to the secretary. The consequences of this further protest shall be limited to changing the allocation of BARCS League points.

10 Matrix Organisation

1. The flying order shall be determined by a matrix system that minimises situations where competitors fly together more than once. The ideal minimum matrix is for at least FOUR pilots in each slot, when the number of pilots and helpers present are sufficient to achieve this (e.g. 16 or more entries). However, with a smaller number of competitors approaching the minimum of 8, a matrix of THREE pilots in each slot may be used.
 - a) Using a Four Man Matrix
 - i. If competitors drop out when a four man matrix is being used, the CD should, where possible, maintain four man slots whenever the organisation and frequency allocation allows.
 - ii. Where possible competitors who are moved should not have flown against any of the three other pilots in other rounds. Should this not be possible, three man slots may be flown at the CD's discretion. A competitor who refuses a CD's request to change slots may be disqualified from the competition and given a zero score.
 - iii. As a last resort to maintain league status, a "guest" pilot flying the slot in addition to his/her three scoring flights is permitted to make up numbers. The other pilots' scores are percent aged on the guest pilot's score if he/she wins the slot.
 - iv. Pilots should not be required to change from the frequency that they are using for remaining slots.

b) Using a Three Man Matrix

- i. The Organiser / CD must ensure that there are always three pilots in every slot, by moving pilots as necessary to achieve this.
- ii. A competitor who refuses a CD's request to change slots may be disqualified from the competition and given a zero score.
- iii. As a last resort to maintain league status, a "guest" pilot flying the slot in addition to his / her three scoring flights is permitted to make up the numbers. The pilots scores are percentaged on the guest pilot's score if he / she wins the slot.

Entry on the day of the contest will only be accepted if a vacant position is available in the matrix.

11 Rule Queries

The BARCS Competition Secretary will answer any queries on the Rules and Appendix.

12 Advisory Information

This information is provided to help those organising competitions

1. Slots

The organisers must ensure that each competitor has no doubt about the precise second that the Slot Time starts and finishes.

Visual indication * (if provided) may be by the 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 therefore the positioning of a noise source must be given some thought.

2. The BARCS Matrices

A Matrix must be employed to minimise situations where any competitor flies against another more than once, except in the fly off. (It is recognised that, in practice, with certain "awkward" numbers of competitors, or where more than three rounds are flown, a degree of "clashing" will be unavoidable, but this should be kept to the minimum).

The method by which each competitor is given his/her competition number from the Matrix is left to the organisers. Once the contest has started, neither the Matrix Table nor competition numbers must be changed.

In order to minimise the time needed to run the contest, it is very important that the matrix which gives the minimum number of slots per round, with the maximum possible competitors in each, should be selected and the number of frequency groups adjusted accordingly.

3. The Fly Off

The competitors in the Fly-Off must fly against each other to reduce the luck element. The simplest method for the Fly-Off is to fly all competitors simultaneously so that they can all perform in the same block of air. If a frequency or manpower problem prevents a simultaneous fly-off, three slots should be flown ensuring that each competitor meets every other at least once.

4. League Scores/League Cards

With most CD's using a computer program to assist in scoring, the League Results Co-ordinator will normally accept comp scores as Excel spreadsheets or Word Documents via email. Along with scores and classes to which they are to count, it is essential that the members name and BARCS number is supplied.

Cards can still be submitted, Postage costs for sending these will be refunded by BARCS upon request.

5. Safety

Finally, but not least, previous experience has made everyone very conscious of taking the utmost care to effect safety towards competitors, including helpers, officials and not forgetting spectators. Two important areas to consider are the careful layout of the flying field including a safety corridor as defined for Open, Multi-launch and 100S rules and controlling the number of persons on the field at all times.

Competitors should be reminded of the dangers of electric motors and batteries, best model operating practice and safety advice can be found in the BMFA Handbook and the BMFA LiPo battery safety leaflet.

SPECIFIC FLYING RULES

1 Open Rules

1. General

The objective of these rules is to provide standards for the competition of radio-controlled soaring gliders. An Open competition must be run to these Open class rules.

2. Competitor and Helpers

In Open competitions, each competitor is permitted two helpers, plus the timekeeper.

3. Competition Flights

In Open competitions, the competitor will be allowed at least three official flights. However, if time and participating numbers permit, the CD is encouraged to fly more rounds.

If more than four rounds are flown; then, the CD may at his discretion, drop a round score after four rounds. An announcement, as to whether a score will be dropped or not, will be made at the pilots briefing prior to the first round.

a) Two day events

Some major events such as the Radioglide championship are spread over two days of flying. In these cases the aim is to have a competition which consists of at least five rounds of competition and a fly off.

If bad weather should prevent five rounds being completed in a two day event then the best three of four will count.

If only three rounds or less are completed then all rounds will count for the competition.

b) Number of attempts allowed

In an Open competition, 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.

4. Organisation of the Flying Slot

a) A competition number derived from the matrix. must be allocated to each competitor

In Open competitions - the number must be retained throughout the first three rounds.

b) Slot Time - Length of slot

In Open competitions - the slot time shall be of 10 (ten) minutes duration. Alternatively providing it has been published in the BARCS Competition Calendar, a Contest Director may run an Open competition with a flight time of 10 (ten) minutes, within a slot of working time 12 minutes.

As another option for Open Competition, the contest Director may, subject to notice as defined above, use the "Multi Launch Rules" as per section 4.13 of this handbook.

c) Reflights

A competitor is entitled to a fly in a new slot in the same round if their original flight is impeded by an event which was not under their own control. The competitor must claim a re-flight immediately after the event and should land as soon as safely possible. If they continue to fly then they will be deemed to have forgone their right to a re-flight.

The re-flight will be organised according to the following priorities:

1. To be fitted into a later slot in the same round, if possible.
2. In a new group comprising any pilot claiming a re-flight plus more pilots drawn at random to make the group up to a minimum of three.

A pilot called to fly by random selection in a new group has the right to accept or reject the invitation. If a pilot chooses to fly their score for the round will be the better of that achieved in the original flight or the re-flight.

If the impeding event happens within the first 30seconds of launching during a fly off round or the last slot of a round then the CD has the right to cancel the flight and order a re-launch.

5. Launching

a) Permitted Methods of Launching

In OPEN competitions - the launch of the model may be by:-

- i. Hand held towline, with or without a pulley, one person only to tow. Any anchoring of pulleys to be done by means of a ground stake *.
- ii. Powered winches. b)

General Powered winches

- i. 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.
- ii. 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.
- iii. Release of the model must occur within approximately 3 metres of the winch or, if there is a safety corridor in use, then launching must take place at the front or 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.
- iv. The towline (which must be of non-metallic material except for linkages) must be equipped with a pennant having a minimum area of 5 dm². A parachute (5 dm² 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.
- v. (v) 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 towlines or if it strikes another towline during launching.

6. Scoring

a) Flight Timing

The flight will be timed from the moment of release from the launching device to:-

- i. The moment the model first touches the ground.
- ii. The moment the model first touches any object in contact with the ground. Parts of launching devices extending away from the ground shall not be interpreted as objects in contact with the ground.
- iii. Completion of the Slot Time. b)

b) Flight Score

Will be composed of ONE point for each FULL second of flight time.

c) Overflying Penalties

- i. A penalty of 30 points will be deducted from the flight score for overflying the end of the Slot Time for up to a maximum of ONE minute (sixty seconds).
- ii. A zero score will be recorded for overflying the end of the one minute penalty time.
- iii.

d) Landing Bonus

Landing bonus will be awarded provided the model comes to rest within the arc of the landing tape. The measurement shall be taken from the nose of the model. No landing bonus is awarded if the model touches the competitor or his assistant during landing.

A landing within 1 metre of the target scores 50 pts - within 2 metres of the target scores 45 pts.

A landing within 3 metres of the target scores 40 pts - within 4 metres of the target scores 35 pts.

A landing within 5 metres of the target scores 30 pts - within 6 metres of the target scores 25 pts.

A landing within 7 metres of the target scores 20 pts - within 8 metres of the target scores 15 pts.

A landing within 9 metres of the target scores 10 pts - within 10 metres scores 5 pts. A landing beyond 10 meters receives no bonus points.

No landing bonus points will be awarded if the model over-flies the end of the Slot Time.

e) Slot Scoring

- i. The competitor, who achieves the highest aggregate of points, i.e. flight points plus landing bonus points / less penalty points, will be awarded a corrected score of one thousand points for that slot.
- ii. The remaining competitors in that slot will be awarded a percentage of the slot winner's total score calculated from their own points score.

$$\text{SCORE} = \frac{\text{COMPETITORS POINTS}}{\text{SLOT WINNERS POINTS}} \times 1000$$
 (to 0 decimal place)

i.e. The slot score is rounded down to the nearest whole number.

7. Safety, Cancellation and/or Disqualification

In the layout of the field it is recommended that a "Safety Corridor" be set out of about six metres width. This corridor should extend for the full length of the flight line running to at least 10 metres beyond the end of any designated landing and launching positions or any organiser required obstruction in line with this corridor, such as a control tent or table. All launches and re-launches should take place from the safety corridor at its upwind side. In the event that model or any part thereof comes to rest, after landing, in the safety corridor a penalty of 100 points shall apply. In the event that the model hits any person in the safety corridor a penalty of 1000 points shall apply.

A flight is cancelled and recorded as a zero score if, after landing, some part of the model does not come to rest within 75 metres of the designated landing spot. The model may be re-launched to record a score within the slot time still remaining, following a first launch flight resulting in such a zero score providing the intention to re-launch is declared within the first 30 seconds of flight as defined in Rule 3c) above.

In addition other criteria apply which will result in a zero score. Namely: The model not conforming to the required characteristics; the model being flown by someone other than the pilot; the model losing a part in mid air, other than from a collision or on landing; the CD ruling that a pilot has unnecessarily and deliberately executed dangerous manoeuvres.

8. Final Classification *

a) In OPEN competitions, 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) Flight and Scoring Rules for the Final Fly-Off

In OPEN competitions, the fly-off differs from the initial rounds in no other way other than the slot time being increased to 15 minutes and an audible warning being given at 13 minutes.

2 'Multi-Launch' Open Class – Specific Rules

1. Objective

- a) The objective of these rules is to provide for equitable competition of multiple types of models all flying against each other in the same slot. Specifically the rules will allow winch (or hand tow launched) gliders to fly along with height limited electric sailplanes and also allow hand launched (essentially discus launched) gliders to all participate.
- b) League entries may be made in the relevant BARCS Open, electric or HLG leagues PROVIDED the competitor uses the same type of model throughout the entire contest.
- c) The gliders flown may also, if the flyer so elects, be of a type which meet the 100S, RES, Classic, Vintage or tail-less definitions. If they meet such a definition the resulting scores may be counted for these relevant leagues PROVIDED the competitor uses that type of model throughout the entire contest. The electric models can, if the flyer so elects, be of the Restricted electric class rather than Open electric. If a Restricted electric model is used throughout the event that will count towards a Restricted electric league score as and when such a league is established.

2. Model Characteristics

- a) Gliders, for winch or hand tow launching, shall conform to the definitions as in the Standard Rules.
- b) Electric models shall also lie within the area, weight, wing loading restrictions as defined in the Standard Rules but in addition they may not exceed 4000mm in wingspan, or 2000mm/100 inches (as applicable) for the Restricted class. The power source may be any form of rechargeable battery. Batteries may be charged, or changed during the competition. Any type of electric motor may be used. An appropriate height limiter device MUST be fitted.. The height limiter device should be set for cut-off at a height of 175 metres above the launch height or for 30 seconds from "power on", whichever comes first. The height limiter switch must be installed in such a way that adequate venting to it occurs such that outside air press is duplicated at the installation position in the model of this height limiter device.
- c) Hand (or discus) launched gliders shall have a maximum wingspan of 1500mm and a maximum weight of 600g. The use of gyros on board the model is not allowed. Devices except bungee equipment which do not remain part of the model during and after launch are not allowed.

3. Use of Models

Normally no more than one entry will be permitted for large multi-launch competitions. Double/multiple entries will be permitted with the specific agreement of the CD. Such double/multiple entries are applicable when the second/multiple entry is of a different model class, The CD will determine whether or not to accept such entries dependent on the total number of entries received. This is to ensure as much flying, with as many rounds as possible, for all competitors in the time available. Where a competitor enters two classes of models at an event, only one score, the highest, will be used to calculate the Multi-launch League score.

- a) Competitors may change not only the model but also the type of model used at any stage during the competition. However unless a competitor completes the entire event with a single class of model, the resulting score is NOT eligible to count towards any BARCS league scores. For example a competitor may choose to fly some rounds with a winch launched glider and others with an electric model. That is acceptable, subject to the above caveat of league score eligibility.

4. Competitors and Helpers

Each competitor is allowed two helpers and a timekeeper. The timekeeper may act as a helper and may also launch the competitor's model unless it is a hand launched model.

5. Competition Flights

- a) A minimum of three official flights (rounds) is required for the competition to qualify as a league event. The intent of the event is to fly multiple rounds as limited by factors such as the time available and the weather.
- b) Two attempts at an official flight are permitted for large gliders and electric models. Thus for models other than hand launched gliders, ONE (only) re-launch is allowed. That re-launch may be made at any time within the slot time. The final attempt at an official flight constitutes the score.
- c) For hand launched gliders four launches are allowed to make up their official flight – see 10 below
- d) There is an official attempt at a flight as soon as the model has left the hands of the launcher.
- e) If time and weather permit such that MORE THAN FOUR rounds are flown, the lowest score from one round is then discarded.

6. Safety Cancellation and/or Disqualification

In the layout of the field it is strongly recommended that a "Safety Corridor" be set out of about 5 metres width. This corridor should extend for the full length of the flight line running to at least 10 metres beyond the end of any designated landing and launching positions or any organiser required obstruction in line with this corridor, such as a control tent or table. Other than hand launched glider, which may launch and relaunch from their designated landing area, all other launches and re-launches shall take place from the safety corridor at its upwind side. In the event that model or any part thereof comes to rest, after landing, in the safety corridor a penalty of 100 points shall apply. In the event that the model hits any person in the safety corridor a penalty of 1000 points shall apply. For safety reasons competitors must not catch large or electric powered gliders, the penalty for doing so is the complete loss of the flight points. Hand launched gliders however may be caught prior to a re-launch.

For electric models, a flight is cancelled and recorded as a zero score, if the motor is re-started either by the competitor or by the height limiter device at any time during the flight. The model may be re-launched to record a score within the slot time still remaining, following a first launch flight resulting in such a zero score. A flight is cancelled and recorded as a zero score if, after landing, some part of the model does not come to rest within 75 metres of the designated landing spot. The model may be re-launched to record a score within the slot time still remaining, following a first launch flight resulting in such a zero score. However if a large glider or electric powered glider is re-launched, timing will only start again after the line is released or the motor stops, whichever is applicable. In addition other criteria apply which will result in a zero score. Namely: The model not conforming to the required characteristics; the model being flown by someone other than the pilot; the model losing a part in mid air, other than from a collision or on landing; the CD ruling that a pilot has unnecessarily and deliberately executed dangerous manoeuvres. If a part is lost on the first attempt at a flight, the model may be re-launched and is then eligible for a scoring flight.

7. Organisation of the Flying Slots

- a) The slot time shall be of 10 minutes duration and shall be PRECEDED by a 30 second pre-slot launch window. Models may be launched (or re-launched if applicable) at any time chosen by the competitor either during, or after this pre slot launch window BUT timing can only commence once the 10 minute slot has commenced and also AFTER the timing criteria for the type of model apply – see section 10 below
- b) Safety is of paramount importance and the 30 second pre-slot window described above is to help minimise the risk of incidents including mid air collisions. To further minimise this risk it is recommended that any pilots flying hand launched gliders should be assigned a position at the ends of the flight line.

8. Launching

- a) Permitted methods of launching for large Gliders.

The launch of the model may be by:-

- i. Hand held towline, with or without a pulley, one person only to tow. Any anchoring of pulleys to be done by means of a ground stake *.
- ii. Powered Winches

- b) General Powered winch Rules

- i. 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.
- ii. 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 metres.
- iii. Release of the model must occur within approximately 3 metres of the winch or, if there is a safety corridor in use, then launching must take place at the front or 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.
- iv. The towline (which must be of non-metallic material except for linkages) must be equipped with a pennant having a minimum area of 5 dm². A parachute (5 dm² 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.
- v. 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 towlines or if it strikes another towline during launching.

- c) Electric models shall be launched from the hands of the competitor or one of his helpers.
- d) Hand launched gliders shall be launched by the competitor in person (unless he is registered disabled in which case the CD shall permit a helper to launch for him). In general it is expected the launching of such hand launched gliders will be by the "discus" method.

Mini bungees are allowed for the hand launched gliders (but full size bungees for the larger gliders are NOT as they would impede other competitors). If a mini bungee is used, it is acceptable for a helper to retrieve it and ready it for subsequent use but it must meet the following requirements:

- i. Competitors are required to provide their own mini-bungee.
- ii. The bungee is to have a maximum un-stretched length of 20 metres, of which a minimum of 15 metres must be of non stretching line.
- iii. A clearly visible pennant must be attached to the model end of the bungee
- iv. The bungee must be securely staked at the upwind end using a tent peg type anchor.
- v. 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.
- vi. The bungee and 27 meter tape must be re-reeled between rounds
- vii. The bungee should be staked such that launch of the model is accomplished from within the safety corridor.

9. Scoring

- a) For gliders, other than hand launched gliders, timing of the flight starts from when the model leaves the towline OR when the slot period of 10 minutes commences, whichever comes later.
- b) For electric models, timing of the flight starts from when the power is cut to the motor or when the slot period of 10 minutes commences, whichever comes later. Note timing is from motor off, NOT from when the model is first launched.
- c) For hand launched gliders, timing of the flight starts from when the model leaves the launcher's hand or when the slot period of 10 minutes commences, whichever comes later.

- d) One point is awarded for each second of flight time.
- e) Timing of the flight stops when any part of the model touches the ground or touches any object or person on the ground.
- f) For models, other than hand launched gliders, only the final attempt at a flight counts for scoring. For hand launched gliders, four launches are allowed in each round and the flight times from these four attempts are cumulative to give the final flight score for such gliders. For these hand launched gliders a 2 second bonus will be added to the flight time of their second, third and fourth flights. This is to recognise the time lost in a landing and a re-launch. Only the final landing (in a flying slot) qualifies for potential bonus points for the landing
- g) A penalty of 30 points will be deducted from the flight score for over- flying the end of the 10 minute slot time. In addition no landing bonus points are awarded if the model over-flies the 10 minute slot period. If the over-fly exceeds one minute a zero score will be recorded.
- h) Landing bonus will be awarded provided the model comes to rest within the arc of the landing tape. The measurement shall be taken from the nose of the model. No landing bonus is awarded if the model touches the competitor or his assistant during landing.

A landing within 1 metre of the target scores 50 pts - within 2 metres of the target scores 45 pts.

A landing within 3 metres of the target scores 40 pts - within 4 metres of the target scores 35 pts.

A landing within 5metres of the target scores 30 pts - within 6 metres of the target scores 25pts.

A landing within 7 metres of the target scores 20 pts - within 8 metres of the target scores 15 pts.

A landing within 9metres of the target scores 10 pts - within 10 metres scores 5pts. A landing beyond 10 meters receives no bonus points.

10. Final Classification *

As defined above, if more than four rounds are flown, the lowest score for any one round shall be discarded prior to totalling the scores to arrive at the final (pre fly-off) results. The competitors with the highest percentage scores from the rounds flown may be subject to a fly-off if time permits. This may be a one or two round fly-off and the intent to have a fly-off, or not (and the number of rounds it will comprise), should be announced by the CD prior to the start of the event. The number of people in the fly off should represent 15% of the entry, rounded up to the nearest whole number and subject to be a minimum of four and maximum of nine. The fly off will use the same rules and procedures as the preliminary rounds except that the slot time period will be 15 minutes (instead of the 10 minutes used earlier). Models, other than hand launched gliders, get two attempts for their fly-off flight score, hand launched gliders get five but only one

discard is permitted, The final fly-off score for hand launched gliders will be (as in the main contest) the sum of four attempts plus the extra two seconds for the second, third and fourth flights.

11. Processing

The CD has the right to inspect any model before, during or after the event to ensure it complies with the required characteristics as defined in 4 above. In particular, for electric models, the CD can check if an approved height limiter device is fitted and correctly installed. The CD also has the right to ask, at any stage during or immediately after the competition, for the data from the competitor's height limiter to be downloaded and analysed.

3 '100S' Class

1. General

The object of these rules is to provide for the equitable competition of standardised radio controlled gliders. A 100S competition must be run to the BARCS 100S class rules.

In 100S Competitions, additional entries are permitted for Classic, Vintage and Tail-less models, providing they also meet the 100S model specification.

2. Competitor and Helpers

In 100S competitions, each competitor is permitted TWO helpers, plus the timekeeper.

3. Competition Flights

In 100S Competitions, the competitor will be allowed at least FOUR official flights, all to count. However, if time and participating numbers permit, the CD is encouraged to fly more rounds.

If more than four rounds are flown; then, the CD may at his discretion, drop a round score after four rounds. An announcement, as to whether a score will be dropped or not, will be made at the pilots briefing prior to the first round.

a) In 100S Competitions, the competitor will be allowed at least FOUR official flights, all to count.

b) Number of attempts allowed:-

In a 100S competition, 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.

4. Organisation of the Flying Slot

- a) A competition number derived from the matrix must be allocated to each competitor.
In 100S competitions - the number must be retained throughout the first FOUR rounds
- b) Slot Time - Length of slot
In 100S competitions - the slot time shall be of 8 (eight) minutes duration.
- c) Pilot's Position
During flights, pilots and their helpers shall remain outside the edge of the landing area.

5. Launching

- a) Permitted methods of Launching
In 100S competitions - the launch of the model may be by:-
 - i. Hand held towline, with or without a pulley, one person only to tow.
Any anchoring of pulleys to be done by means of a ground stake. *
 - ii. Powered Winches
- b) General powered winch rules
 - i. 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.
 - ii. 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
 - iii. Release of the model must occur within approximately 3 metres of the winch or, if there is a safety corridor in use, then launching must take place at the front or 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
 - iv. The towline (which must be of non-metallic material except for link-ages) must be equipped with a pennant having a minimum area of 5 dm². A parachute (5 dm² 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.

- v. 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 towlines or if it strikes another towline during launching.

6. Landing

- a) That the landing zone shall (preferably) 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 all power winches are located) and the downwind end of the zone shall be another line 50 metres downwind of 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.
- b) 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.
- c) Alternatively the CD may, if circumstances do not permit layout described above, layout a Landing circle which shall be a 75 m DIAMETER circle or a similar sized area designated by the CD and placed to one side of the winches.
- d) The centre of the designated landing area shall be marked in a visible way, for instance by the use of a spot or a cone.

7. Safety Cancellation and/or Disqualification

If the layout of the field permits the suggested rectangular landing area downwind of the winch line, then it is recommended that a "Safety Corridor" be set out of about 6 metres width with the upwind edge of the landing rectangle being the downwind edge of the safety corridor. This makes the safety corridor the "Pilot's Box". This corridor should extend for the full length of the flight line running to at least 10metres beyond the end of any designated landing and launching positions or any organiser required obstruction in line with this corridor, such as a control tent or table. All launches and re-launches should take place from the safety corridor at it's upwind side. In the event that model or any part thereof comes to rest, after landing, in the safety corridor a penalty of 100 points shall apply. In the event that the model hits any person in the safety corridor a penalty of 1000 points shall apply.

The flight is cancelled and recorded as a zero score if, after landing, the nose of the model is more than 75 metres from the marked point (ideally a cone) in the centre of the field. The model may be re-launched to record a score within the slot time still remaining, following a first launch flight resulting in such a zero score providing the intention to re-launch is declared within the first 30 seconds of flight. In addition other criteria apply which will result in a zero score. Namely: The model not conforming to the required characteristics; the model being flown by someone other than the pilot; the model losing a part in mid air, other than from a collision or on landing; the CD ruling that a pilot has unnecessarily and deliberately executed dangerous manoeuvres.

The Contest Director has the discretion to disqualify a flight if the flyer flies over or through the flight line at a height that is deemed to be dangerous.

8. Scoring

a) Flight timing

- i. The moment the model first touches the ground.
- ii. The moment the model first touches any object in contact with the ground. Parts of launching devices extending away from the ground shall not be interpreted as objects in contact with the ground.
- iii. Completion of the Slot Time. b)

Flight Score

Will be composed of ONE point for each FULL second of flight time. c)

Overflying Penalties

- i. A penalty of eighty (80) points will be deducted from the flight score for overflying the end of the Slot Time for up to a maximum of ONE minute (sixty seconds).
- ii. A zero score will be recorded for overflying the end of the one minute penalty time.

d) Landing Bonus

if after landing all or any part of the model comes to rest within the designated landing area, a bonus of 50 points is added to the flight time score

e) Slot Scoring

- i. 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.
- ii. The remaining competitors in that slot will be awarded a percentage of the slot winner's total score calculated from their own points score.
$$\text{SCORE} = \frac{\text{COMPETITORS POINTS}}{\text{SLOT WINNERS POINTS}} \times 1000$$
 (to 0 decimal place)
i.e. The slot score is rounded down to the nearest whole number.

9. Final Classification *

- a) In 100S competitions, 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 placing 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) Flight and score for the final fly-off
In 100S competitions, 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.

4 BARCS ELG. Electric Launched Glider Class

(Foreword: Many flyers, especially BARCS members who are accustomed to the format, prefer a fixed 10 minute slot (rather than either the F5J rules or the current BMFA eSoaring rules of a ten minute target flight within an 11 minute period). The following rules are therefore provided for competitions involving electric launched gliders.)

1. Model characteristics

a) The model must conform to the general definition in Standard Rules for models. Many CDs run events allowing Restricted class models to fly as a sub class, either in their own right or as second entries. Thus in addition to the general definitions, Restricted class models must not exceed 2000 mm or 100 inches (as applicable) in wing span.

b) Model must be equipped with an AMRT device set to record and display the maximum height achieved during the motor run time plus 10seconds. This device can also be set to cut the motor at any chosen height up to maximum limit 300mtrs, and 30 seconds maximum motor run time. The height limiter can be any unit recognized as being commercially manufactured for the purpose, and must record and display launch height after each flight. The display to be visible either on the units own screen or via a separate reader at the completion of each flight.

CAM switches or similar commercially manufactured non recording motor cut devices can be used set to 200 mtrs, but will be scored (other than for novice competitors) as launching to 220 mtrs. Once the competition has started, a user of this type of height limiter may be required to reset their motor cut off height to a lower limit if their model is considered to be launching higher than the permitted 200 mtrs.

c) Power source – rechargeable battery, any type.

d) Any type of electric motor may be used

2. Battery charging

Batteries can be charged at any time during the competition.

3. Model processing

At the completion of a round the CD has discretion to require any pilot to confirm the launch height recorded in that round. This discretion is likely to be exercised to check the top three pilots after three rounds. If the last recorded launch height on any model's limiter device screen or card reader cannot be verified, the pilots last recorded score for that round will be adjusted to a zero score.

4. Organisation of competition

- a) Any number of rounds may be scheduled. Each to contain multiple flying slots.
- b) The flying order will be organised by matrix to ensure that as far as possible each competitor will fly against as many other competitors as possible.
- c) Each flying slot will be of 10 minutes duration timed and started by the CD. Flight time will include motor runtime, and will commence at model launch, terminating in a spot landing within the 10 minute slot. Motor must not be started until the signal starting the slot is heard. A penalty of 100 points will be deducted from the pilots final score.
- d) The height limiter switch can be set to cut at not more than 300 metres above launch height and additionally the motor run must not exceed 30 seconds.
- e) One re-launch may be made at any time during the slot. Last launch only to count.
- f) Claims for re-flight considered on an individual basis and are at the discretion of the CD. A mid-air collision would be accepted. A frequency clash, not caused by a claimant would be accepted. An organizer matrix mistake would be acceptable. A pilot in the wrong slot due to their own negligence would not be. A failure of time keeper's stopwatches would not be. Re-flights will be added to the next convenient slot in the same round. Where this is not possible, or the re-flight claim is made in the last slot of any round, volunteers will be requested to make up a new extra slot. The claimants score in the slot will be taken for the competition. Volunteer flyers will have the choice to use either their existing slot score or their reflight score.
- g) The competitor is entitled to five minutes preparation time from the time he is called to the launching area.
- h) The CD must clearly indicate the start and end the working time audibly and if possible visually.
- i) It is the competitor's responsibility to provide a timekeeper and to ensure that the person is fully conversant with the rules.
- j) Each timekeeper should be equipped with a timer for slot time and a separate timer(s) for flight time.
- k) At the start of the slot, the timekeeper will start his own slot timer. At the launch of the competitor's model, the timekeeper will start his flight timer. The timekeeper will then assist the pilot by advising elapsed motor run time and announcing the approaching end of the slot time.

- l) The timekeeper must stop the flight time watch when the model touches the ground or an object in contact with the ground. . If the model overflies the slot time, then the flight time watch must be stopped when the end of slot is sounded.
- m) It is the timekeeper's responsibility to ensure the competitors flight time, landing bonus and any penalties are recorded and delivered to the CD.

5. Landing

- a) The landing target centre should be marked. A tape leading from the centre indicates the landing bonus.
- b) The targets should be laid out with reference to the wind and site topography.
- c) Competitors & timekeepers should remain upwind of the landing target centre at all times.
- d) After landing competitors may only retrieve their models if it does not impede other competitors.
- e) Each competitor should have his own landing target.

6. Scoring

- a) One point per full second of flight time, to a total of 600 seconds (10:00 minutes).
- b) A deduction of 3 points per metre for launch height exceeding 200 metres
- c) A penalty of 30 points will be deducted from the flight score for overflying the end of the Slot Time for up to a maximum of ONE minute (sixty seconds).
- d) A zero score will be recorded for overflying the end of the one minute penalty time.
- e) No landing bonus points will be awarded if the model overflies the end of the Slot Time.
- f) A zero score will be recorded for a flight where motor run is in excess of 30 seconds
- g) A zero score will be recorded if the motor is re-started after the first 30 seconds (or the CD allotted time) of flight.
- h) Landing bonus will be awarded provided the model comes to rest within the arc of the landing tape. The measurement shall be taken from the nose of the model. No landing bonus is awarded if the model touches the competitor or his assistant during landing.

A landing within 1 metre of the target scores 50 pts - within 2 metres of the target scores 45 pts.

A landing within 3 metres of the target scores 40 pts - within 4 metres of the target scores 35 pts.

A landing within 5 metres of the target scores 30 pts - within 6 metres of the target scores 25 pts.

A landing within 7 metres of the target scores 20 pts - within 8 metres of the target scores 15 pts.

A landing within 9 metres of the target scores 10 pts - within 10 metres scores 5 pts.

A landing beyond 10 meters receives no bonus points.

i) Landing more than 75 metres from the target receives zero flight score. The model may be re-launched to record a score within the slot time still remaining, following a first launch attempt at a flight resulting in such a zero score.

j) In addition other criteria apply which will result in a zero score. Namely: The model not conforming to the required characteristics; the model being flown by someone other than the pilot; the model losing a part in mid-air, other than from a collision or on landing; the CD ruling that a pilot has unnecessarily and deliberately executed dangerous maneuvers. If a part is lost during the first attempt at a flight, the model may be re-launched and is then eligible for a scoring flight.

k) For each slot, the competitor with the highest score (flight + landing bonus – height penalty) will receive 1000points. Competitors with lower scores will be awarded a proportion of the winner's score i.e. $\text{score} \times 1000 / \text{winner's score}$.

7. Final classification

a) Where more than five rounds are flown the lowest score will be discarded.

b) In the event of a tie the discarded score will decide places on the day but both competitors will receive equal League scores.

c) In the event that (b) does not produce a winner then a one round fly-off will be held.

5 'HLG' Hand Launched Glider Class

1. General

a) BARCS HLG is a flat field multitasking thermal soaring contest where RC gliders may be launched by hand or mini-bungee and aim to accomplish specific tasks.

b) Rules Objectives

To provide a standard set of rules for the competition of radio controlled hand launched gliders based on the current FAI F3K rules with BARCS variations as indicated below.

2. BARCS Rules Variations

a) Organisation

The contest should consist of at least four rounds for the event to count towards the BARCS league. The CD may announce more rounds to be flown before the start of the contest and/or a fly-off. In certain situations (for example bad weather conditions) the CD may decide that fewer rounds than initially announced will be flown and the fly-off may be omitted.

b) Timekeeper/Helper

For practical reasons the role of timekeeper and helper can be combined. Non flying competitors can be utilised as timekeeper/helper.

c) Mini-bungee

Due to the undeniably physical demands of hand launching the use of a mini-bungee is permitted at BARCS events.

The objective of allowing the use of a mini-bungee is to encourage the participation of less physically able competitors and to make the class as accessible as possible to all, regardless of physical ability.

However to remain within the spirit of the class hand launching is to be encouraged wherever possible.

d) Mini Bungee requirements

- i. Competitors are required to provide their own mini-bungee.
- ii. The bungee is to have a maximum un-stretched length of 20 metres, of which a minimum of 15 metres must be of non stretching line.
- iii. A clearly visible pennant must be attached to the model end of the bungee.
- iv. The bungee must be securely staked at the upwind end using a tent peg type anchor.
- v. 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.
- vi. The bungee and 27 meter tape must be re-reeled between rounds
- vii. The bungee should be staked approximately 5 metres from the upwind edge of the square.

e) Tasks

Additional tasks may be included at the CD's discretion provided they adhere to the general framework of the existing FAI tasks.

f) Current FAI F3K rules are available from the following:

BARCS website: www.barcs.co.uk

FAI website www.fai.org/aeromodelling

BMFA contest rules Section 7 Book 1 www.bmfa.org

6 UK F3J Variation Rules

1. BARCS F3J League Competitions

a) Appropriate Rules

A league competition must be run to the current F3J rules (FAI + BMFA UK variations) but with these BARCS variations, permitted.

b) Minimum number of entries

For an F3J competition to qualify as a BARCS League event, the organiser should try to achieve a minimum of 12 (twelve) competitors. If the minimum 12 cannot be attained, as a local variation a competition may be run with 9 (nine) competitors providing the CD is satisfied he can run a fair competition.

c) Competition declared void in respect of the leagues

In BARCS F3J competitions, in the event that the competition is terminated short of three rounds, due to bad weather or insufficient time, for example, league cards must be returned to their owners. The competition would be declared void in respect of the BARCS Leagues.

2. BARCS Leagues

a) Leagues for which scores may be submitted

In BARCS F3J competitions, scores may be submitted for any of the following leagues:- F3J, Open, 100S, RES, Classic, Vintage, Tail-less, using the score of the competitor's single entry.

b) Additional entries

In BARCS F3J competitions, no additional entries are permitted.

3. Launching

c) In BARCS F3J competitions, electric winches may be used.

7 F3B Thermal Soaring

As a formal FAI class where the only F3B events which now take place in the UK are those staged by the BMFA as part of the F3B team selection process, F3B rules (and any UK variations thereto) have been deleted from this Handbook. See the BMFA Glider Rule Book, Section 7 of BMFA rules, Book 1.

8 F3F Slope Racing

F3F events are staged by the BARCS, the BMFA or the GBSRA and generally as part of the F3F team selection process,. To avoid duplication as F3F is now an FAI adopted class, F3F rules (and any UK variations thereto) are not included in this Handbook and are provided in the BMFA Glider Rule Book, Section 7 of BMFA rules, Book 1.

9 Slope Cross Country Rules

1. Characteristics of Radio Controlled Glider

Characteristics as per the general Rules apply but note normally the maximum flying mass as defined in such rules of 5kg still applies however the CD may permit models in excess of this FAI limit to fly providing that, if the maximum flying mass exceeds 7 kg, the CD (or the competitor) has obtained prior permission from the appropriate air traffic control unit for such a 7kg plus model to operate in the relevant airspace. If the model weighs more than 20Kg an exemption certificate acceptable to the CAA, covering airworthiness of the model and competence of the pilot, is required before any such entry can be accepted.

2. Objective

The objective is to complete a course set out by the CD in the shortest time. The CD may or may not allow running or alternatively he may require all competitors to walk. During the course a number of tasks must be completed as determined by the CD such as 180 deg turns or 360 (or more) deg turns at selected waypoints and/or low pass tasks. In each case the competitor must be present at the waypoint whilst the model completes the designated task. A slot time shall be set by the CD and if a competitor has not completed the course by the end of the allotted slot time he must land and his score is the result of tasks completed at that time.

3. Competitor and Helper

The competitor (pilot) must operate his radio equipment personally. Each pilot is permitted one helper who may offer guidance and assist the pilot in the negotiation of obstacles. The helper may carry the pilot's Task Schedule and present it at each gate for signing by the Gate Marshal.

4. Control of Transmitters

- a) The organiser cannot begin the competition flights until all competitors have checked in all transmitters with the organisers. Failure to check 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) If required the competitor must hand over his transmitter to the designated official immediately after finishing his flight.

5. Organisation of starts

a) Rounds

- i. Before the start of each round the Contest Director shall describe the course to the competitors showing a map of the flying site featuring contours of the flying site, the numbered gates, the tasks required at each gate, the scale and a North point.
- ii. Dependent on the number of entrants and the time available, two or more qualifying rounds should be run.
- iii. The flying order shall be determined by a matrix system that minimises situations where competitors fly together more than once.
- iv. The flying order must be scheduled in rounds sub-divided into time slots.
- v. Dependent on the number of entrants and the time available, a fly-off may be used to determine final placing. The intent to hold a fly-off should be announced by the CD prior to the start of flying and should consist of the top 20% of pilots with four as a minimum number.

b) Slots

- i. The slot shall be started by an audio or visual indication e.g. the raising of a flag or a coloured board or the sounding of a sound signal.
- ii. The slot shall have a duration of between 20 mins and 60 mins. The duration of the slot, which may be changed between rounds at the discretion of the Contest Director, shall be announced at the beginning of each round.
- iii. The slot shall, ideally, consist of a minimum of 4 and a maximum of 12 competitors.
- iv. The slot shall be ended by an audio or visual indication as for the start
- v. If a model is damaged during a mid-air collision the pilot may re-start using one of his other models or using parts there from to make a new model.
- vi. Any model airborne at the completion of the slot time must land immediately it is safe to do so. The radio should be switched off and this fact reported to the nearest Gate Marshal.

6. Definition of an attempt

- a) An attempt is started when the model has been hand launched by the pilot or his helper.
- b) An attempt is ended when the model comes to rest upon the ground or upon an object in contact with the ground.
- c) The pilot is allowed an unlimited number of attempts within the slot time with the final attempt to count. Each attempt shall start at the Start / Finish gate.

7. Cross Country Course

- a) The course shall consist of a series of tasks numbered 1,2,3,4 etc. starting and finishing at the Start/Finish gate.
- b) The length of the course and the location of the tasks should be arranged in such a way that the course becomes increasingly difficult and provides a near impossible challenge for all of the competitors. (If pilots are able to proceed around most of the course without pausing for their model to gain height then this is a sign that the tasks are too easy).
- c) The course may be changed between rounds. If in any slot in the first round more than one third of the pilots in the slot finish the course and conditions are not deteriorating then the course shall be made more difficult for the second round.
- d) Exceptionally the course may be changed within a round if the wind shifts direction to render the course impractical or too easy. The pilots shall be re-briefed.
- e) The course may be changed for any fly-off round. Additional tasks may be introduced. The course should be increased in difficulty compared with the course(s) used in the qualifying rounds. (However, conditions may determine that the course remains the same or is made shorter).
- f) Progress around the course shall be by walking or running only.
- g) Whenever possible the course shall be designed so that the pilot and helper can move from gate to gate using existing tracks and paths.

8. Completion of the Course

- a) In the qualifying rounds the course is complete when the finish task is completed. If a pilot has not finished then his score will be based on his progress at the end of the slot.
- b) In any fly-off slot if more than one pilot finishes then the time to finish determines the placings. Fastest time wins.

9. Interruption

- a) An interruption shall occur if rain is falling such that be-spectacled pilots have their vision impaired. This shall be judged by the Contest Director.
- b) An interruption shall occur if the mean wind speed measured at the Start/Finish gate exceeds 25 m/s.
- c) The interruption shall be signalled at the Start/Finish gate by the waving of a flag and an intermittent sound signal. All competitors shall land their models and return to the start when the interruption is signalled.
- d) The result of the slot shall stand if one half of the slot time has elapsed at the time of interruption. Otherwise the slot shall be cancelled and re- run when the interruption has ceased.

10. Re-flights

- a) A pilot shall be allowed a re-flight in the following circumstances only:-
The pilot's progress around the course is impeded, hindered or aborted by circumstances beyond the control of the pilot and his helper, duly witnessed by one of the official judge.
- b) Organisation of Re-Flights
 - i. In case of a re-flight being granted for a pilot flying in a group that is not the final group the pilot shall fly within one of the groups remaining to fly within the round.
 - ii. If the re-flight is granted in the final group then the final group shall be re- flown. The best of the two results is the official score except for pilots who have been allowed another attempt. For those pilots the results of the re-flight group shall be the official score.

11. Cancellation of a flight or disqualification

- a) The flight in progress is annulled if the model loses any part during the flight time. The loss of a part during landing (i.e. any object in contact with the ground) or due to a mid-air collision is not taken into account
- b) The competitor is disqualified if the model is controlled by anyone other than the competitor.
- c) The flight is annulled if the model touches any person other than the pilot or his helper whilst in flight or during landing.

12. Cross Country Tasks

Tasks selected by the CD for the course shall be a suitable selection of the following.

- a) 360 Degree Gate
This shall consist of one pole or two poles. If two poles are used they should be placed approximately 30m apart. Each pole should have a height of about 1.3m and be fitted with a flag and/or a number plate. The gate should be set up such that a line joining the two poles (if two poles

are used) is approximately perpendicular to the wind direction. The upwind side of the gate shall be nominated by the Contest Director at the start of each round.

b) Low Pass Gate

This could consist of two vertical poles set approximately 10m apart. One pole shall have a minimum height of 1.3m and be fitted with a flag and/or a number plate. The other pole which shall also be effectively supported shall be fitted with a sighting pole at head height that shall be aligned with the horizon or distant object and in line with the gate. Alternatively a clear line of sight for the model to pass below – such as the far horizon can be employed.

c) Turning Gate for 180 (or more) turns

This shall consist of one vertical pole having a height of about 1.3m fitted with a flag. The flag shall be clearly visible against the background.

13. Definition of tasks

a) N x 360 degree turns

The model shall start the task by entering the 360 degree gate from the upwind side flying in a downwind direction at any altitude. The model should then turn through 180 degrees and then through N x 360 degrees and then exit the gate. The model shall not cross over to the upwind side of the gate during the turns. The turns shall be made in the horizontal plane.

b) Low Pass

The model shall perform the task on one side of the low pass gate as instructed by the Contest Director. If so required the model shall pass beneath the line of sight in b-both directions with both passes being performed consecutively. The choice of which direction of pass or passes shall be done is optional unless specified by the Contest Director.

c) Turn Point

The model shall pass through a vertical plane which has one vertical edge above the pole and extends to the horizon in a direction specified by the Contest Director and/or the Gate Marshal (generally in a downwind direction to a prominent landmark on the horizon).

d) Start/Finish Gate

Flags shall be used to identify the Start/Finish gate as per the 360 degree gate. Models shall be launched from within 20 m of the Start/Finish gate. The model shall finish the course by flying over the gate at any altitude and within 30m of the centre line of the gate in a direction as specified by the Contest Director

14. Validation of Tasks

- a) All tasks should be witnessed by a Gate Marshal who shall sign the pilots gate schedule when the gate has been satisfactorily completed.
- b) The Gate Marshal shall instruct the pilots to repeat the entire task if the requirements of the task are not met in full. Each task shall be completed successfully before the next task may be attempted.
- c) In the event of a task being aborted with the model still flying the task may be started again.
- d) The Gate Marshal shall stand at the pole at which the task is to be performed.
 - e) Both the pilot and his helper shall stand with the Gate Marshal and within 5m of the pole while the task is being performed. The pilot may not leave the gate until the task is completed or aborted.

15. Scoring

- a) Starting a task: 1 point.
Each completed a task: 1 point.
Finish gate: 1 point
- b) The flight time shall be measured.
- c) The competitor who achieves the highest aggregate of points will be awarded a corrected score of 1000 points for that slot.
- d) In the event of a tie on points, the fastest time shall determine placings. e)
The remaining competitors in that slot will be awarded a percentage of the slot winner's total points score calculated from their own total points score. i.e.
$$\frac{\text{Competitor's points in slot}}{\text{Winner's total points in slot}} \times 1000$$

16. Classification

The final classification for competitors in any fly-off slot shall be determined from the aggregate of scores for the qualifying rounds and the fly-off slot. In the case of ties, the slot results from the qualifying rounds shall be considered and the aggregate of task points obtained shall be used to determine the final classification. Any further ties remaining after this shall be determined by the competitor's physical progress around the course at the end of the fly-off slot as duly witnessed by the Gate Marshal. Final classification of competitors not flying in the fly-off slot shall be based on the aggregate score achieved in the qualifying rounds and, in the event of ties, by the time they took to complete the course.

10 Recommended procedures for Safety at Competitions

When one of our gliders lands, in its last six feet to the ground, it sweeps across some 40 yards of flying site with its many feet of wingspan, thus presenting a high capacity for collecting people as it goes - people who are likely to be concentrating their attentions elsewhere as it makes its silent approach.

Such is the success of thermal soaring now that Britain's busy competition scene has to cope with around 7,000 landings a year. Now let's repeat that - SEVEN THOUSAND LANDINGS A YEAR.

Now is the time to recognise the probability of what the annual injury statistics could amount to. We do not want to be hurt, we do not want our colleagues hurt and we do not want to spend our summer weekends wearing safety helmets.

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

1. Landing areas must be maintained as clear as possible. - This is the responsibility of everyone on the site from spectator to organiser
2. The control point should not be located downwind of the landing area.
3. In competitions involving landing targets, each competitor in each slot should have his own landing circle. On restricted sites, the circles may overlap with a minimum of 10 metres between centres. Only the pilot and one helper is allowed to enter the landing area during the landing manoeuvre.
4. In competitions not involving landing targets, an ideal safe landing area can be marked off by isolating either an area downwind of the launch area or alternatively an area to one side of the site parallel to the direction of towing and opposite to the site access point. This way only retrievers need to enter the landing area.
5. Current rules introduce a "Safety Corridor" for many classes along with penalties for infringement of that corridor. CDs should apply these penalties as prescribed to ensure adequate safety.