

Australian Open Electric Thermal Soaring Rules

Definition of an Open Electric Radio Controlled Glider

An Open Electric Glider is any model that is propelled by an electric motor and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed, (i.e. not rotating or ornithopter type surfaces). Models with variable geometry or area must comply with the specification when the surfaces are in maximum and minimum extended mode. The model must be controlled by the pilot on the ground using radio control connection. Any variation of geometry or area must be actuated at distance by radio.

Prefabrication of the Models

Builder of the Model is not applicable to this class.

Characteristics of Electric Radio Controlled Gliders

Maximum surface area150 dm²

Maximum flying mass5 kg

Loading on the Surfacesbetween 12 and 75 g/dm²

Any device for transmission of information from the model to the pilot is prohibited.

The competitor may use up to three models in the contest. The competitor may combine the parts of the models during the contest, provided the resulting model used for flight conforms to the rules and that the parts have been checked before the start of the contest.

Competitors and Helpers

The competitor (pilot) must operate his radio equipment personally. Each pilot is permitted two helpers.

Definition of an Attempt and an Official Flight

For each heat, the competitor is entitled to 2 attempts during the working time allocated to him. An attempt starts when the model is released from the hands of the competitor or his helper with the motor running. No change of model or parts of the model is allowed after starting the first attempt.

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:

- His model in flight collides with another model in flight, or another model in the process of launch (released for flight by the competitor or his helper). Should the flight continue in a normal manner, the competitor may demand that the flight in progress be accepted as official.
- The flight has not been judged correctly by the official judges or timekeepers. If the timing person is supplied by the competitor and there has been a timing malfunction, this will not be grounds for a re-flight unless it is brought to the attention of the Competition Director within 4 minutes of the start of working time and the competitor's flight is immediately abandoned.
- In the case of an unexpected event, not within the control of the competitor, causing the flight to be hindered or aborted.

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 that, if in the event the competitor either continues to launch, or does a re-launch, after the occurrence of the hindering condition(s), he is deemed to waive his right to a new working time.

When a competitor obtains a new working time period, and his model 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. This rule applies only when the damage inflicted to the model is directly linked to the incident that gave the right to the re-flight.

Official Flight

One re-launch is permitted, but the model must land first. The watches are zeroed and the subsequent attempt becomes the official flight.

Cancellation of a Flight or 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, or conduct not in the spirit of the rules, aimed at affecting the results in a prejudicial manner, in the judgement of the Contest Director, the competitor may be disqualified.

b) The flight in progress is annulled if the model loses any part during the launch or the flight time. The losing of a part during landing (i.e. in contact with the ground) is not taken into account.

c) The competitor is disqualified if the model is controlled by anyone other than the competitor.

d) If the model touches either the pilot or his helpers during landing manoeuvres, no landing points will be given.

Organisation of Starts

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 composition of the groups must be changed every round in order to have different combinations of competitors. There must be a minimum of four pilots in a group.

If several fliers in a group are impeded in their flight the CD may cancel that heat. In this case, the group will fly again and the result will be the official result.

A different starting order shall be used for each round.

The competitors are entitled to 5 minutes of preparation time before the starter gives the order to count off working time.

Organisation of Contests

The official will issue the transmitter to the competitors only at the beginning of their preparation time. (This rule may be waived subject to local conditions).

Safety Rules

Except in the circumstances described above, if after release of the model from the hand of

the pilot or helper, the model contacts any object (earth, car, stick, plant, etc.) or a person within the safety area, the flight will be penalised. The number of contacts during one flight does not matter (maximum one penalty for one flight). The penalty will be a deduction of 100 points from the competitor's final score and shall be listed on the score sheet of the round in which the contact occurred.

All relevant MAAA and CASA safety directives must be observed. The organizers of major events should seek height clearance of at least 1000 ft.

Definition of the event

This contest is a duration-task event for electric powered radio controlled gliders. It is an open event for electric-powered gliders with no limitation on motors or cells used, except that 42V should not be exceeded in the power battery (safety rule).

Limited Electric Glider

At the CD's discretion, a Limited class may be included as a sub-set of the main (Open) event. Any electric motor of any size or type may be used, but the battery pack is limited:

The flight pack must consist of one of four chemistries with the following maximums:

- Up to seven Nicad or MiMh cells, or
- LiPo cells up to 6600 cell-mAh power factor, or
- LiIon cells up to 10000 cell-mAh power factor

(the power factor is the number of cells multiplied by the milliamp capacity of the pack – eg. A 2S/ 3300 LiPo pack is 2 times 3300 = 6600)

Examples of valid packs:

- 2S/ 3300 mAh LiPo
- 3S/ 2200 mAh LiPo
- 4S/ 1600 mAh LiPo
- 4S/ 2300 mAh LiIon (A123 cells)
- 7/ GP-3700, GP-2200, IB-4200 NiMh

Launching

All launching shall take place in an area as designated by the organiser with provisions made for launching into the wind.

Task

- a) This task must be completed within 12 minutes from the order of the starter. The start signal must be audible at all places along the base line.
- b) One point will be awarded for each full second from the time the model is free flying to the time the model 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 commences when the model is released from the hand of the launcher.
- c) One point will be deducted for each full second flown in excess of 600 seconds (10 minutes).
- d) One point will be deducted for each second of motor run. The length of the motor run

after launch is decided by the pilot. Once the motor is stopped, it cannot be re-started unless an emergency situation occurs. In this case the flight time ceases when the motor is re-started and no spot landing points will be awarded.

d) Additional points will be awarded for landing, depending upon distance from the spot, marked by the organiser, according to the following tabulations:

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 nose when at rest to the spot (centre of the circle of 15 m radius). No points will be awarded for the quality of landing.

No landing bonus will be awarded if the flight time exceeds 630 seconds (10 1/2 minutes), if the motor is re-started during the flight, or if the landing occurs after working time ceases.

The measured distance is rounded up to the nearest higher metre.

e) For models 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 a decreasing number of points awarded will be compiled, called "Partial Score "

Partial Scores

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

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

$$\text{Partial Score} = 1000 \times \frac{P1}{PW}$$

Where P1 = points of the competitor calculated according to details above (Task)
 PW = points of the winner in the relating group.

Final Scores

If only five rounds are flown, the competitor's final score is determined by the sum of all Partial Scores for each round. If more than five rounds are flown, the lowest Partial Score is omitted. If more than 11 rounds are flown, then the 2 lowest partial scores will be omitted. To decide the winner when there is a tie, a new round will be flown by the tied competitors.

Site

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