

Clarifying changes to Slope Soaring Models

Presented by Ian Cole at a trial day at Mt Hollowback, Victoria, on January 4, 2009
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Legend

~~Strike through~~ text has been applied to highlight deletions as required.

Bold Italics have been used as required to highlight inclusions. This includes paragraph/section numbering whether it be inclusions or relocation.

Most of the current numbering has been kept. However, in order to do this and include additional sentences/paragraphs and the like, the order of the numbering may have been modified and/or relocated in some instances.

Note: The formatting rules above do not apply to any text highlighted in red.

Introduction to the Changes

The pylon racing has been deleted from the rules at the request of the majority of Victorian fliers who are believed to be the only people who run this event. Instead, the aerobatics section is to become a stand-alone event and the pylon racing is to be run to FAI rules.

As there will be only one event listed in **Slope Soaring Models**, the name has been changed accordingly.

The Changes

5.6.1. Re-titled to accommodate a specific contest, as there will be only one contest in these rules.

5.6.1.1. This rule is new and describes the contest.

5.6.1.2. This rule has been amended to describe the types of aircraft allowed. The terminology has been converted into plain English wherever possible. Rule 5.6.1.2. a) is based on the description found in the rules for electric gliders. Rule 5.6.1.2. b) is the same rule found in the electric glider rules.

A NOTE has been included at this point of the document.

5.6.1.3. This rule will need to be changed on the original document as indicated in green text. See clarification of this change (**5.6.1.3.**) further on in this document. (Perhaps this rule could be made consistent wherever it appears throughout the MAAA Rules book.)

Also, points b) and c) have been added.

(Format of current rule.) There are no restrictions on the model except that it must comply with the general FAI limits:

Maximum Surface Area (St)	150 dm ²
Maximum Flying Mass	5 kg
Loading on St	between 12 and 75 g/dm ²

5.6.1.4. Changed from a NOTE to a rule.

5.6.1.5. New rule to fall in line with MAAA requirements. A sentence to cover when an electric model can be used is also included.

5.6.1.6. The original rule here showed that one round represented one aerobatics task and one pylon racing task. Therefore, if the 'two rounds' rule were to remain for the aerobatics, which is to become a stand-alone event, it is felt that two rounds would not be enough to provide a fair outcome. Hence the 'three rounds' rule recommendation.

5.6.1.7. This is self-explanatory.

5.6.1.8. Ditto.

5.6.1.9. Changed so that the Contest Director makes the decision whether or not conditions are suitable to fly.

(This current Rule is to be deleted.) Flying will normally proceed when the wind velocity is between 8 and 80 **km/hr**(5 and 50 mph, 2.25 and 22.5 m/s). However, these limits may be varied by the Contest Director depending upon the site and conditions prevailing.

5.6.2. All the text in this section will no longer apply and is to be deleted. However, the numbering will remain and substitute text has been added. See next.

5.6.2. Manoeuvre Requirements

a) The seven minute rule has been deleted and self-explanatory text has been added. The original rule can rarely be applied and in fact, has not been enforced for over 15 years due to the unpredictable conditions. Therefore, substitute text has been added to compensate for this inconsistency.

b) Added as part of the requirements for the amended manoeuvre's program.

c) The original rule here has been transferred elsewhere in this document and renamed, Rule 5.6.2.2. In its place (in the same position) is a rule which further describes the requirements for the amended manoeuvre's program.

d) This rule was transferred from the pylon racing section to its present position. Also, the sentence regarding the 1000% requirement has been deleted, because pilots prefer to see their raw scores and feel that there is no need to convert to percentages. Refer to the original rule 5.6.2.4. b) further in this document.

5.6.2.3.1. To be substituted with a new program.

5.6.2.1. The new program.

5.6.2.2. Changed to allow for what is already done on occasions. i.e. to allow for more than two models at a time to perform the tasks. The Contest Director can decide on the day what is best.

5.6.2.3. Added for clarification of the judges' requirements. It is accompanied by a new diagram.

5.6.

SLOPE SOARING MODELS

5.6.1. General Rules *for the (State of Origin) State Championship - Slope Aerobatics*

5.6.1.1. *The contest is to be flown using non-powered models to perform the required tasks whenever possible. In the event of not enough lift to fly the models within the required time, electric powered models or electric assisted sailplanes can be used in order to complete the required tasks. It will be up to the contest director to determine when it is appropriate to use electric powered models or the like.*

NOTE: *A pilot should come prepared with appropriate models as described below.*

a) *A model which fits the criteria of a Radio Controlled Glider and a model which fits the criteria of a Radio Controlled Electric Powered Aircraft.*

or

b) *A hybrid model which fits both the criteria of a Radio Controlled Glider and a Radio Controlled Electric Powered Aircraft.*

5.6.1.2. ~~Definition of a Radio Controlled Glider~~ *Models suitable for this Contest*

~~Aero model which is not provided with a propulsion device 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 mode. The models 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.~~

a) ~~Definition of a Radio Controlled Glider~~

~~*Model aircraft in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight, except control surfaces and which performs manoeuvres controlled by the pilot on the ground, using radio control.*~~

b) ~~Definition of a Radio Controlled Electric Powered Aircraft~~

~~*Model aircraft in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight, except control surfaces and which performs manoeuvres controlled by the pilot on the ground, using radio control. The power pack for the electric motor may not have any fixed connection to the ground or another model aircraft in the air.*~~

NOTE 1: *Paragraph B. 3.1. of Section 4b (Builder of the Model) is not applicable to this class.*

5.6.1.3. **Characteristics**

a) There are no restrictions on the model except that it must comply with the general FAI limits:

1. Maximum Surface Area (St) - 150 dm²
2. Maximum Flying Mass - 5 kg
3. Loading on St between 12 and 75 g/dm²

b) *No fixed or retractable arresting device (i.e. bolt, sawtooth like protuberance, etc.) is allowed to slow down the model on the ground during landing.*

c) *The underside of the model must not have any protuberance other than the towhook and surface control linkages. The towhook must not be larger than 5mm in frontal width and 15mm in frontal height.*

- 5.6.1.4. A pilot may fly any number of models during a contest ~~but may not~~ **and can** exchange models during working time **only if the aircraft is unflyable. In this situation, the pilot can re-join the other contestants in a suitable time-slot chosen by the Contest Director.**
- 5.6.1.5. **There must be at least five contestants for an event to be held and there must be at least five contestants with electric powered models at the start of the contest before these models can be used.**
- 5.6.1.6. **A minimum of three rounds must be flown.**
- 5.6.1.7. A pilot is permitted ~~only one helper~~ **two helpers.**
- 5.6.1.8. The model may be relaunched during ~~both the aerobic~~ **aerobatics** and pylon racing tasks.
- 5.6.1.9. Flying will normally proceed when the wind velocity is between 8 and 80 km/hr (5 and 50 mph, 2.25 and 22.5 m/s). However, these limits may be varied by the Contest Director depending upon the site and conditions prevailing.

The Contest Director shall determine whether or not the conditions are suitable for flying.

~~5.6.2.~~ **Rules for Slope Soaring Contests**

~~5.6.2.1.~~ The contest is a two task event for radio controlled gliders, specifically:

- ~~1) pylon racing, and~~
- ~~2) aerobatics.~~

~~Flying the two tasks constitutes a round. A minimum of two rounds must be flown.~~

~~5.6.2.2.~~ **Task One – Pylon Racing**

~~a) – Course. The course is to be a nominal 100 metres with fifteen full laps to be flown.~~

~~e) Start. A "sail boat" type start will be used with one minute to gain height and a countdown for the last ten seconds before racing and timing starts. There will be a working time of five minutes from the order to "race". Those models, whether air borne or not, that have not completed the course at the end of the working time will be allocated a notional time of~~

~~15~~

~~5-X minutes~~

~~No. of full laps flown~~

~~If no model completes the 15 laps within the working time, the heat will be reflown.~~

~~d) In the event of a mid air collision, the heat may be reflown if a claimant signifies this intention immediately. The reflly will take place as soon as possible but not before the start of the following round.~~

Note: Models may be replaced within a round only in the event of a mid air collision.

5.6.2.3. **Task Two – Aerobatics**

5.6.2. **Manoeuvre Requirements**

- a) Manoeuvres are to be flown in the order presented in these rules and only those completed within **the nominated time (if one is set)** ~~seven minutes of launch time~~ will be scored. The pilot must announce the start **and finish** of each manoeuvre. The Contest Director may modify or delete manoeuvres in adverse conditions. ~~The optional manoeuvre (see list) must be nominated to the judges prior to the launching of the model.~~
- b) ***A pilot shall nominate two optional manoeuvres per round, choosing one from each of the k-factor groups on offer in the following format:***
- ***round one - 1.5 and 2***
 - ***round two - 2 and 2.5***
 - ***round three - 2.5 and 3***
 - ***round four - 1.5 and 3***
- Should more than four rounds be run, the format of round four will be used. Manoeuvres cannot be repeated during the event with the exception of rule 5.6.2. c).***
- c) ***Should a pilot not wish to nominate a manoeuvre from either of the two groups on offer in a round, a manoeuvre from a lower group can be chosen. In this situation only, a manoeuvre can be repeated.***
- ~~b) There will be at least two judges. If possible, two models will share the same time slot, alternating manoeuvres where practicable.~~
- d) ***All manoeuvres will be scored from 0 to 10 with multiplying k-factors as shown. The pilot with the highest score will be declared the winner with minor placings to follow in descending order.***

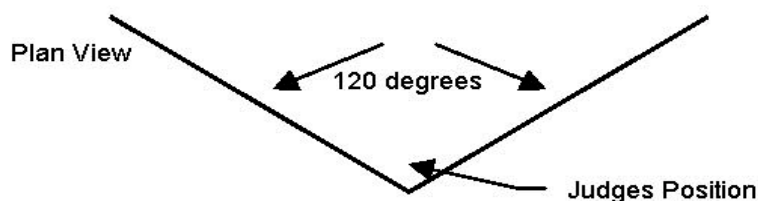
5.6.2.3.1.	Manoeuvres	K Factor
1.	Two consecutive loops	1.0
2.	Singe axial roll	1.0
3.	Inverted flight (5 seconds)	1.0
4.	Three turn spin	1.0
5.	Two stall turns (opposite directions)	1.0
6.	Optional manoeuvre (to be nominated from list below)	
	-two outside loops	1.5
	-four point roll	2.0
	-three consecutive rolls	1.5
	-inverted spin	2.5
	-cuban eight	2.0
	-inverted circle	1.5
7.	Touch and Go	0.5
8.	Rectangular pattern	0.5
9.	Rectangular approach and landing	0.5

5.6.2.1.	Manoeuvres	kf
	1. Two Consecutive Inside Loops	1.0
	2. Slow Axial Roll for 2 seconds minimum	1.0
	3. Straight and Level Inverted Flight for 5 seconds minimum	1.0
	4. Three Turn Spin	1.0
	5. Two Stall Turns in opposite directions	1.0
	6. Optional Manoeuvre #1 to be nominated from the appropriate group below	
	7. Optional Manoeuvre #2 to be nominated from the appropriate group below	
	- Extended Loop	1.5
	- Barrel Roll	1.5
	- Circle	1.5
	- Top Hat with no rolls	1.5
	- Triangular Loop	1.5
	- Square Loop	2.0
	- Four Point Roll	2.0
	- Figure Eight	2.0
	- Inverted Circle	2.0
	- Eight Point Roll	2.0
	- Immelman Combo with ½ inside loop, ½ roll, ½ outside loop, ½ roll	2.5
	- Cuban Eight	2.5
	- Three Consecutive Axial Rolls	2.5
	- Four Consecutive Loops	2.5
	- Knife Edge for 3 seconds minimum	2.5
	- Split S Combo with ½ roll, ½ outside loop, ½ roll, ½ inside loop	3.0
	- Three Turn Inverted Spin	3.0
	- Inverted Figure Eight	3.0
	- Two Outside Loops	3.0
	- Top Hat with ½ roll up, inverted across top, ½ roll down	3.0
	8. D Shaped Circuit and Fly-past over landing area	1.0
	9. D Shaped Circuit and Landing with first 3 legs level, last leg ½ circle	1.0

NOTE: If the model's primary control surfaces are rudder and elevator only (not ailerons and elevator, the Barrel Roll can be substituted for the Slow Axial Roll and the Extended Loop can be substituted for the Straight and Level Inverted Flight.

5.6.2.2. **There will be at least two judges. Multiples models can share the same time slot, alternating manoeuvres where practicable.**

5.6.2.3. **Judges Viewing Window: A manoeuvre must be performed within a specified area as depicted in the diagram below. If it is not, the judges will downgrade the manoeuvre according to the severity of the inaccuracy.**



Note: It shall be left to the discretion of ~~judges and~~ *the* Contest Director as to whether flying conditions are unsuitable for continuation of ~~an aerobatic~~ a flight. A flight aborted under these circumstances may be continued when conditions improve. The time allowed for completion shall be the unexpired working time when the pilot receives the ~~judges'~~ *Contest Director's* decision plus ~~one minute for gain of height.~~ *a given time (if one is set) to gain height.*

*For procedures regarding Slope Aerobatics Contests see the APPENDIX.
It includes procedures for running a contest, manoeuvres and judging guidelines and templates for a scoresheet, scoreboard and manoeuvres card.*

5.6.2.4. **Scoring**

~~a) **Pylon.** Individual round scores will be calculated according to the following formula:~~

$$S = 500 \times \frac{(T_w + T_H)}{T_i}$$

~~where: ——— T_w ——— = time achieved by overall winner of that round
 ——— T_H ——— = time achieved by overall winner of that heat
 ——— T_i ——— = time achieved by competitor in that heat~~

~~i.e. the overall round winner is awarded 1000 points.~~

~~b) **Aerobatics.** All manoeuvres will be scored from 1 to 10 with multiplying K factors as shown. The flier with the highest total score is awarded 1000 points with other scores pro-rata from this.~~

5.6.2.5. **Classification.** ~~The average of the competitors score for the pylon rounds is added to the average score for the Aerobatic rounds to provide an overall score.~~