

**NZMAA FLYING RULES**  
**Section 2: Free Flight**  
**Updates and Alterations**

<b>Date</b>	<b>Paragraph</b>	<b>Change</b>
Feb 2006	5.0	Title Change
Feb 2006	5.9	Renumbered to 5.10
Feb 2006	5.9	New Hangar Rat Class added
Feb 2006	4.9	Cranfield Classic Class added
Feb 2011		Rule 2.7a Tip Launched Glider added
		Rule 4.8 delete (f)
		Rule 1.6a Radio Dethermaliser added
Jan 2012		Rule 1.2.2. Number of models changed
Jan 2013		Rule 2.7 Catapult glider changed

## NZMAA FLYING RULES

### Section 2: Free Flight

#### 1. **FREE FLIGHT: GENERAL RULES**

##### 1.1. **APPLICABILITY**

Free Flight classes flown in New Zealand include the FAI International classes of FIA, FIB, FIC, F1D, F1E, F1G, F1H, F1J, F1K, F1L, F1M, F1N, and F1P. Refer to Section 4C-Model Aircraft-F1-Free Flight

For domestic (non-FAI) classes the following general rules shall apply.

##### 1.2. **MODELS**

###### 1.2.1. **Model use**

No model shall be flown by more than one person in a given event.

###### 1.2.2. **Number of Models**

A competitor may use a maximum of three models in each contest, unless specific classes allow or require otherwise, but may not have more than one being timed at once. He may interchange and repair their various parts as he wishes, providing the resulting complete model conforms to the rules of the contest and that the parts have been processed.

##### 1.3. **TIMEKEEPING**

###### 1.3.1. **Timing**

Timing starts the instant the model is released for flight and includes the length of any engine run. No contestant may time or witness a flight made by his own model. The timekeeper must watch the total flight. The timekeeper must remain within 10 metres of the starting point during the flight. The timing ceases when the model first touches the ground, collides with an obstacle and ceases forward motion or definitely disappears from the sight of the timekeeper. The use of binoculars or other optical timing aid is permissible but not mandatory. The binoculars or optical timing aid should have a minimum magnification of 7X.

###### 1.3.2. **Obstructed Flight**

If the model disappears behind some obstacle or in clouds, the timekeeper is to wait for 10 seconds. Should the model reappear within 10 seconds, timing shall continue. Should the model not reappear, timing shall cease and the 10 seconds shall be subtracted from the flight time.

###### 1.3.3. **Timekeeper**

The timekeeper shall not converse or take notice of comments of onlookers as to the visibility of the model or the termination of its flight.

###### 1.3.4. **Timekeeper's Error**

Should the timekeeper make an error during timing of a flight that adversely affects the contestant's duration for that flight, the competitor may claim another attempt. In an event flown in rounds, a repeat attempt through timekeeper's error may be

taken in the same round or in the round immediately following that in which the error was made.

### 1.3.5. Fly-Offs

- a) For Record Purposes and Decentralised Contests. If the stipulated number of consecutive maximum flights has been scored, the succeeding maximum times shall increase in increments of one minute until the contestant fails to score a maximum, except for classes F1A, F1B and F1C where the maximum times shall increase in increments of two minutes. The total of these flights on one day shall be used to determine records or decentralised contest placings.
- b) At Centralised Contests: A fly-off to break ties in a contest shall commence within a 10 minute period to be nominated by the Contest Director. At least 15 minutes notice shall be given of the commencement of the flyoff. The flyoff shall comprise of a single flight of unlimited duration, except for classes F1A, F1B and F1C where the maximum times for each fly-off shall increase in increments of two minutes. The Contest Director shall clearly announce the commencement and ending of the fly-off period and models must be released before the expiration of the period. Two timekeepers shall be assigned to each Competitor whenever possible. The time recorded will be the mean of the times registered by the timekeepers, but reduced to the nearest whole number of seconds below the resulting mean unless the difference between the times registered shows evidence of an error in timing, in which case the Contest Director will determine which time will be registered as the official time or what other action should be taken
- c) No-flights are permissible but the subsequent attempt must be made within the 10-minute period regardless of the reason for the no-flight.

## 1.4. NO FLIGHTS

A no-flight entitles the competitor to a repeat attempt. Each competitor has the right to two no-flights for each official round. Three no-flights shall constitute a round. In the event of there being no official flight recorded in a round, the competitor shall have the right to have his last no-flight time accepted as his round time. A competitor will not be allowed to claim a no-flight if he is deliberately responsible for terminating his flight. Except for timekeeper's error, repeat attempts following no-flights must be made in the same round as the no-flights.

### 1.4.1. Recording

Unless otherwise specified, a no-flight is recorded:

- a) When the total flight time is 20 seconds or less
- b) When the motor run exceeds the stipulated maximum
- c) When the model is assisted in any way at ROG or ROW launch.
- d) If any part of the model or any apparatus necessary for take-off or flight is lost or becomes detached during the start or during the timed flight.
- e) If a model collides with a person or any obstruction at launching or with another model or towline, whilst it is in flight.

*Note however that should the model continue in its flight, the competitor may opt for the flight to be recorded as official provided that this option is taken before subsequent flights.*

- f) In tow-launched glider events if the glider lands without becoming detached from the launching cable or the contestant tows so far that the timekeeper cannot see the moment of release.

### **1.5. LAUNCHING AREA**

Outdoor Free Flight models shall be launched from within a 50 by 100 metre rectangular area, the longest dimension lying across-wind. In towline glider events, either the competitor or the launcher/helper must start from within the rectangle.

### **1.6. DETHERMALISER**

Where a model uses a fuse-type dethermaliser, it shall be fitted with a suitable tube to contain and snuff the burned fuse.

#### **1.6 A RADIO DETHERMALISER**

Radio d/t will be allowed in all NZ classes of free flight with the exception of aggregate.

- a) All RDT units shall be commercially available.
- b) Frequencies shall be used that pose no interference possibilities with current R/C model operations and each unit shall be capable of being uniquely digitally coded to ensure no interference with other free flight models.
- c) During contests and fly-offs operation of the RDT unit will result in that that flight being an official flight regardless of the flight time.
- d) For events with other conditions determining the official/unofficial status of the flight, such as engine run and in-flight collision, these conditions shall take precedence over the RDT official flight requirements.
- e) These rules shall apply to all classes with the exception of Aggregate, and those not covered by the FAI rules.

### **1.7. RECORDING OF FLIGHT TIMES**

Flight times will be recorded to the nearest whole second below with the following exceptions:

- a) Engine run times
- b) Indoor HL Glider, and
- c) When determining no-flights (e.g. a flight of 20.1 seconds will be recorded as an official flight).

*In a) b) and c) above the actual stop-watch reading to the nearest one-tenth of a second will be used to determine the official time.*

### **1.8. FAI CONTEST ORGANISATION**

FAI Free Flight Contests in New Zealand (F1A, F1B, F1C, F1D, F1E, F1G, F1H, F1J, F1K, F1L, F1M, F1N, and F1P. ) will use rules from the FAI sporting code Section 4c. [2004 Edition].

#### **1.8.1. Waivers**

Contest Directors of DOMESTIC CONTESTS may waive the following rules from Section 4c (most of which apply to contest organisation and procedure, but have little effect on the actual flying of the contest):

- a) All of B7 (Organisation of International Contests)
- b) B15.15 A,B,C,D inclusive (Marking of motors and models)
- c) 3.3.9c. (Timekeeping of FIC motor run.)

### 1.8.2. Applicable Rules

The following rules from Section 4b will apply to NZ International contests for FAI classes:

- a) B.3.3 Proxy
- b) B.3.4 Age
- c) B.5.3 Local Rules
- d) B.7.2 Contest Organisers Processing Obligations
- e) B.7.3 Contest Organisers Obligations
- f) B.7.4 Contest Organiser: Practice Day
- g) B.7.6 Contest Organiser: Results
- h) B.7.7 Contest Organiser: Contest Area
- i) B.7.8 Contest Organiser: Insurance Cover
- j) B.7.9 Contest Organiser: Stopwatches
- k) B.8.1 Free Flight: Starting Line
- l) B.8.2 Timekeeping
- m) B.11.2 Recognition of Model
- n) B.11.3 Timekeeping
- o) B.11.5 Timers Obligations
- p) B.11.7 Use of Binoculars
- q) B.12.1,2. Contest Duration
- r) B.13 Contest interruption
- s) B.15 Processing of Models
- t) B.16 Protests
- u) B.17 Safety
- v) B.18 Disqualification

### 1.9. **MAXIMUM TIME LIMIT PER FLIGHT**

Except when otherwise specified, the maximum time limit for outdoor Free Flight classes is 180 seconds. Flight in excess of 180 seconds will not score. There is no maximum flight limit on Indoor F/F or Indoor Tethered classes.

For domestic F1A, B, C events, excluding F1C trials, the first round maximum shall be 210 seconds unless weather conditions preclude such a time. The decision to change or not will be made by the Contest Director on the site.

## 2. **FREE FLIGHT: GLIDER**

### 2.1. **HAND LAUNCHED GLIDER**

- a) Hand launch with the thumb and at least one finger of the launching hand making contact with the fuselage
- b) Hand launch
- c) 6 flights
- d) 60 seconds maximum per flight
- e) No-flight time 10 seconds or less
- f) No limit on number of models but a contestant may not have more than one model timed at once.
- g) Maximum Wingspan 80cm, maximum weight 80 grams.

**2.2. OPEN GLIDER**

- a) Tow launched
- b) 3 flights

**2.3. A/1 GLIDER**

- a) Tow launched
- b) 5 flights
- c) Maximum time - 120 seconds
- d) Maximum surface area - 18 dm<sup>2</sup>
- e) Minimum weight - 220 grams

**2.4 CLASSIC A/2 GLIDER**

- a) Total Surface Area 32 to 34 square dm.
- b) Minimum weight 410 grams
- c) Tow launched but straight tow only. All forms of circle tow hook are banned. The tow hook must be fixed with no moving parts to facilitate zoom rudder or the like.
- d) Towline of 50 metre maximum length.
- e) 5 flights
- f) 180 seconds maximum per flight
- g) A flight will be considered an official flight when:
  - (a) The first attempt is equal to or greater than 20 seconds.
  - (b) The second attempt has been made whatever the time achieved.
- h) An unlimited fly-off will be held if required.
- i) Models must have been kitted or the design published prior to 1 January 1971. Models designed and flown prior to this date but not kitted or plan published may be considered eligible if the flier can prove such with evidence of original drawings plus published material including photos relating to the model.
- j) Modern materials may be used in construction and covering but the finished model must comply with the appearance of the original. In this regard composite booms (of any type but of a similar diameter) may be used but only if a composite boom (e.g. fibreglass) appears on the plan or can be proved to have been used on such a model prior to 1 January 1971.

**2.5. A/2 GLIDER(F1A)**

- a) For FAI (F1A) Rules refer to the FAI (F1A) Rules
- b) Tow launched
- c) 7 flights or rounds where necessary. ( ie. National Championships or International Contests.)
- d) Surface area 32 to 34 dm<sup>2</sup>
- e) Minimum weight 410 grams

**2.6. EXPERIMENTAL GLIDER**

- a) Tow launched
- b) 3 flights
- c) Flying wing type only

**2.7 CATAPULT GLIDER**

- a) The launching device shall be a single loop, or multiple loops of rubber of no more than 6.72mm<sup>2</sup> (equivalent of 1/4 x1/24) in total cross section,

230mm(9 inches) in length maximum, attached to a handle 150 mm (6 inches) long maximum.

- b) 6 flights
- c) 60 seconds maximum per flight.
- d) No-flight time = 10 seconds or less.
- e) No limit on the number of models, but a contestant may not have more than one model timed at once.

### **2.7a Tip Launched Glider**

- a) Model must be launched by holding one wing tip only.
- b) 6 flights
- c) 60 seconds maximum per flight
- d) No flight time is 10 seconds or less
- e) No limit on the number of models, but a contestant may not have more than one model timed at once.
- f) Maximum wing span 1.000 meter, maximum weight 150 grams.

## **2.8. TOWLINE GLIDER FLYING RULES**

### **2.8.1. Towlines**

The model is towed into the air by the contestant and launched by means of a non-extensible cable. The length of the towline measured from tow ring to the extreme end of the handle in a fully unwound condition shall not exceed 50 metres under a tension of 2 kilograms for all classes other than F1A , the requirements of which are covered under FAI F1A rule 3.1.

### **2.8.2. Pennant**

In order to ascertain the moment of release, a small bright flag or pennant of minimum area  $2.5 \text{ dm}^2$  , the smallest side to be at least 50mm, must be attached to the towline near the towing ring.

### **2.8.3. Towing**

The competitor is free to move in any direction during tow - he must not, however, deliberately interfere with or impede other contestants in the act of towing. The competitor must not discard the tow winch during tow. If the winch is discarded before release of the model, disqualification from that round will result. The competitor may tow without a winch and may release the end of the towline to effect release.

### **2.8.4. Timing**

Timing starts the instant the towline and flag are seen to fall free from the model.

## **3. FREE FLIGHT RUBBER: OUTDOOR**

### **3.1. OPEN RUBBER**

- a) Hand launch, ROG, ROW.

- b) 3 flights

### **3.2. COUPE D'HIVER**

- a) Hand launched.
- b) 3 flights
- c) 120 seconds maximum per flight
- d) Minimum weight of model less motor(s) 70 grams
- e) Maximum weight of motor/s lubricated 10 grams

### **3.3. WAKEFIELD(F1B)**

- a) For FAI (F1B) Rules refer to the FAI (F1B) Rules
- b) 7 flights or rounds where necessary.(ie National Championships or International Contests)
- c) Minimum weight of model less motor(s) 200 grams
- d) Maximum weight of motor(s) lubricated 30 grams.
- e) Surface area 17 to 19 dm<sup>2</sup>

### **3.4. EXPERIMENTAL RUBBER**

- a) Launch optional
- b) 3 flights
- c) Flying wing, ornithopter, helicopter, autogyro

### **3.5. P.30**

- a) Hand launch
- b) 3 flights
- c) 120 seconds maximum per flight
- d) Minimum weight without rubber 40 grams
- e) Maximum weight of rubber 10 grams (lubricated)
- f) Maximum wingspan 30 inches
- g) Maximum length 30 inches
- h) Freewheeling plastic propeller 9 1/2 inch diameter
- i) The prop may be balanced and a freewheeler clutch may be fitted. No other modification to the propeller permitted.

### **3.6. TIMING**

Timing commences at the moment of release and includes the time that the motor is running

## **4. FREE FLIGHT: POWER**

### **4.1. 1/2A POWER**

- a) Maximum motor capacity 1cc
- b) Maximum motor run 7 seconds
- c) 3 flights
- d) Hand launch, ROG, or ROW
- e) 120 seconds maximum per flight

### **4.2. OPEN POWER**

- a) Maximum motor capacity 10cc
- b) Maximum motor run 10 seconds



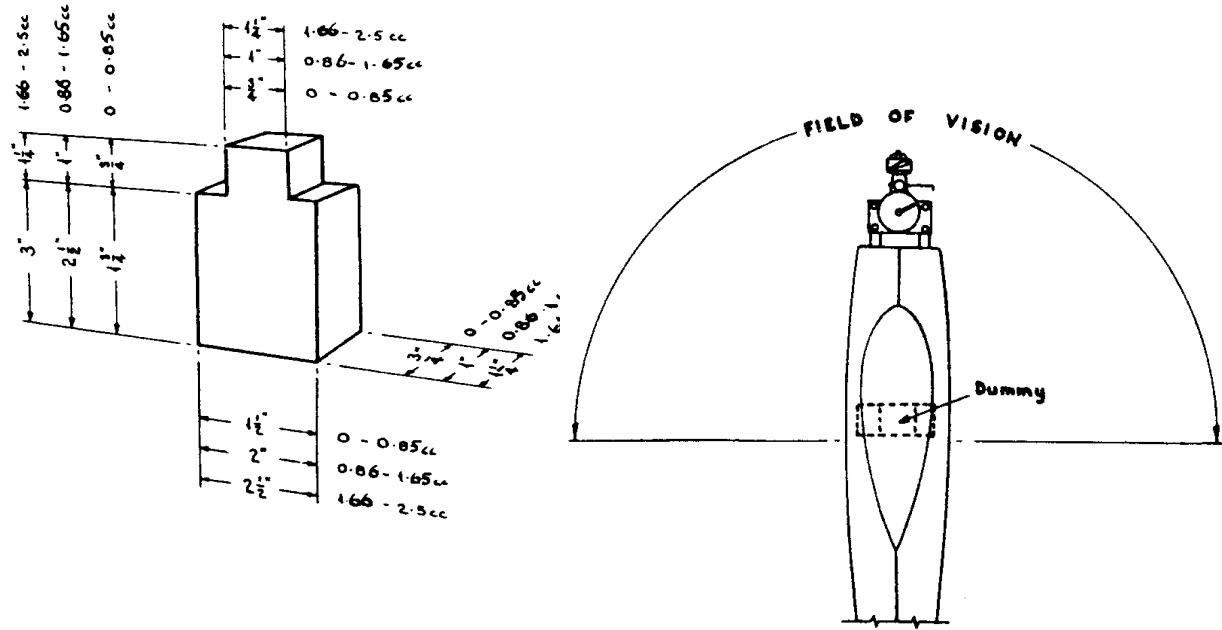
- c) 3 flights
- d) Hand launch, ROG, or ROW

#### **4.3. AGGREGATE**

- a) Maximum motor capacity 1.5cc
- b) No limit on motor run
- c) Launch optional
- d) Flights of less than 20 seconds are not recorded
- e) 180 seconds maximum per flight
- f) Flying is for a period of 30 minutes, the object being to accrue the maximum possible flying time in this period. Motors must not be started until the start of the 30 minute period. At the end of the period, the contest Director shall signal the stopping of all watches.
- g) One model only may be used and no major components (wing, tail, fuselage) may be replaced during the contest.
- h) The contestant must start and adjust his own motor, launch and retrieve his own model on foot.
- i) The model must be launched from within 5 metres of the same starting point on each flight.
- j) Placings and records are determined from total flying times of each contestant.

#### **4.4. PAYLOAD**

- a) Maximum motor capacity 2.5cc.
- b) ROG or ROW. Models shall be fitted with a conventional under-carriage having, in case of land-planes, at least two wheels, and shall take-off from this undercarriage in an orthodox manner.
- c) Payload weight of 141 grams per cc minimum is to be carried in the form of a dummy of minimum dimensions as detailed on the diagram.
- d) The dummy must be placed upright in the model and facing forward, and must have at least 180 vision measured from the back of the head. The dummy must be removable without dismantling the model in flying condition.
- e) The window must extend from the top of head to the shoulder of the dummy and the fuselage cross-section at the dummy position must be at least the width of the dummy and must remain constant to the level of the wing platform. Low, mid, or shoulder wing models must have a transparent canopy.
- f) Maximum motor run 15 seconds.
- g) Five flights.



#### 4.5. CLASS D POWER (F1C)

- a) For FAI (F1C) Rules refer to the FAI (F1C) Rules
- b) 7 flights or rounds where necessary. (ie National Championships or International Contests.)
- c) Five second motor run
- d) Minimum total weight: 300 g/cc
- e) Minimum loading: 20 g/dm<sup>2</sup>

#### 4.6. KENNEDY PRECISION

- a) Hand launch but model must be fitted with a conventional undercarriage having at least two wheels.
- b) No limit on motor run.
- c) Points are scored at one point per second up to 120 seconds. One point is deducted from the 120 maximum for each second the flight exceeds 120 seconds.
- d) Flights of over 240 seconds count as a round but score zero points.
- e) No flight is to be terminated by mechanical means (ie. dethermaliser, etc.) except after 240 seconds. Flights terminated by d/t etc. before 240 seconds count as a round of zero points.
- f) Three flights. No-flights as per General F/F rules.

#### 4.7. EXPERIMENTAL POWER

- a) Launch optional. Flying wing, ornithopter, helicopter or autogyro.
- b) Maximum motor run 20 seconds.
- c) Three flights.

#### 4.8. **KIWI POWER**

- a) Suction fed , plain bearing diesel up to 1.5 cc.
- b) Maximum motor run 10 seconds.
- c) Controls: engine shut-off and DT only.
- d) The propeller shall be non folding, mass produced, either Thermoplastic (Nylon type material) or Wood.
- e) 5 flights, 120 sec max.(Note: A three flight contest may be allowed if declared before the contest)

#### 4.9 **CRANFIELD CLASSIC**

- a) Models must be a replica of one of those flown by the 5 co-equal winners of the 1960 Free Flight Power World Championship event (Cranfield, England).
- b) No minimum weight requirement.
- c) 3 flights
- d) 180 seconds maximum per flight.
- e) Maximum motor run 15 seconds.
- f) Permitted motors: Any 2.5cc diesel or glow plug engine in series production prior to January 1961, or replicas of such engines, plus the following additional engines: Cox TD 15and Special 15-1 and 15-II, Enya 15, Eta Elite, Fox 15, K & B Torpedo 15R, Oliver Tiger Mk4 (and Mk4 replicas), OS Max 15 and Max-III 15, OS 15R, PAW 2.49, Super Tiger G20, Taifun Orkan, and Webra Mach-II. **Not permitted:** One off or limited production specials or any schneurle or PDP ported engines.

### 5.0 **FREE FLIGHT: INDOOR- Model Rules**

#### 5.1. **INDOOR HAND LAUNCH GLIDER**

- a) Construction shall be solid wood
- b) Surface reinforcement may be attached to the outer surface of the wood
- c) Hand launch
- d) The best two flights of ten shall determine placings and records
- e) All attempts count as a flight
- f) Timing shall be recorded to the nearest tenth of a second

#### 5.2. **EASY B (Formerly F1L)**

- a) Wingspan, maximum projected: 458mm (18,0 inches)
- b) Wing chord maximum: 76.2mm (3,0 inches)
- c) Stabiliser area maximum: 50% of wing
- d) Structure:
  - i) Only balsa wood and adhesive are to be used for the basic structure. Exempted are the propeller shaft, rear hook, thrust bearing, surface holding fittings and reinforcements for their attachments. No external bracing is allowed except balsa wood wing struts.
  - ii) The motor stick must be a solid single piece of balsa. The tail boom must also be solid and of one piece but may be an extension of the motor stick. Balsa splices up to one centimetre in length may be used to repair breaks in the motor stick or boom.

- iii) The propeller must be all balsa except for ground adjustable pitch fittings, if used.
- iv) There are to be no devices for changing any part of the model's geometry or torque during flight. Only the normal flexing of the structure due to flight loads or motor forces is allowed.
- e) Covering:
  - i) Models are to be covered with any commercially available solid sheet material such as paper or plastic.
  - ii) Microfilm is not allowed.
- f) Minimum weight without rubber 1.2 grams.
- g) The best time of two of six flights to determine placings or records.
- h) Hand launch.
- i) Only flights of 60 seconds or more will be considered as official. A flight may be terminated by any physical means within the first 60 seconds. One no flight allowed for each of the six official flights (not accumulative).
- k) Ceiling heights to conform with Article 5.9.5 Building Categories.

### **5.3. F1D**

For FAI (F1D) rules refer to the FAI (F1D) Rules.

- a) Maximum projected wingspan 550 mm.
- b) Minimum weight without rubber 1.2 grams.
- c) Maximum weight of the lubricated rubber motor 0.6grams.
- d) Hand launch.
- e) The best two of six flights shall determine placings and records.
- f) Only flight times of 60 seconds or more will be considered as official. A flight may be terminated by any physical means within the first 60 seconds. One no flight allowed for each of the 6 official flights. (Not accumulative)
- g) Ceiling Heights to conform with Article 5.9.5 Building Categories.

### **5.4. OPEN MICROFILM**

- a) Covering of all flying surfaces including fin and propeller shall be microfilm
- b) The best of three flights shall determine placings and records
- c) No-flight time 30 seconds or less
- d) Hand launch

### **5.5. FUSELAGE**

- a) Maximum projected wingspan 915mm
- b) Min. fuselage cross section is the square of the overall length divided by 100
- c) Hand launched, ROG or ROW
- d) The best of three flights shall determine placings or records
- e) No-flight time 30 seconds or less

### **5.6. EXPERIMENTAL**

- a) Autogyros, helicopters, flying wing and ornithopters only.
- b) Launch optional
- c) No-flight time 20 seconds or less
- d) The best of three flights shall be determine placings or records

### **5.7. OPEN TISSUE**

- a) None of the flying surfaces including fin or propeller may be covered in microfilm

- b) The best of three flights shall determine placings and records
- c) No-flight time 30 seconds or less
- d) Hand launch
- e) Maximum weight with rubber 5 grams

### **5.8 F1N (FAI Indoor Hand Launch Glider)**

FAI Rules 3N1 to 3N9 inclusive apply to this class.

### **5.9 Hangar Rat**

- a) Models must be built to any of four published plans from the following sources:
  - "Model Builder", August 1979 (USA)
  - L. Kelsall/ M. Starick kit plan (Aust)
  - "Aeromodeller", issue 757, Non/Dec 1998 (UK)
  - "Free Flight Downunder", Vol 34, No 1, Summer 2002 (Aus)
- b) Models may be made to pull apart for ease of transportation.
- c) Wooden propellers must be built to plan specifications and must not be cambered or thinned. Commercially made plastic propellers may be used but must not exceed 7 inches in diameter.
- d) A reinforcement block may be used to strengthen the rear hook.
- e) Covering must be Model a/c tissue paper as commercially available in NZ.
- f) Motors are to be a single loop made from a 915mm strip of 1/8 inch maximum width rubber.
- g) ROG launch.
- h) The best two of six flights shall determine placings. The third best flight will be used, if required, to break any tie.
- i) All attempts count as flights.

### **5.10.0 INDOOR FLYING RULES**

#### **5.10.1. Winding**

Either the competitor or his helper may wind the rubber motors.

#### **5.10.2. Influence**

During flight, the model may not be influenced by the use of hands or by the production of artificial air currents.

#### **5.10.3. Steering**

To prevent a model colliding with the structure of the building or with another model, a balloon, its line or a stick 2 to 8 metres long may be used up to three times per flight. Each steering period must not exceed 15 seconds. The altitude of the model must not increase during the steering period. HL Gliders may not be steered.

#### **5.10.4. Timing**

The timing of each flight commences when the model is released. Timing will terminate when the model first touches the floor of the building or when jettisoning occurs. Should the model strike an obstruction other than the floor and forward movement ceases, the timekeepers shall continue to time the flight for 15 seconds. Should the model remain in contact with the obstruction after 15 seconds, timing will cease and the 15 seconds will be subtracted from the flight time. Should the

model release itself from the obstruction in less than 15 seconds, timing will continue normally.

#### **5.10.5. Building Categories**

For contest and record purposes, the following ceiling heights apply:

Category 1 up to 9.15 metres

Category 2 over 9.15 metres.

Ceiling height is the distance from the floor to the highest point in the building that can be seen looking vertically up from the floor.

#### **5.10.6. Ceiling Factors**

For Decentralised contests, performances in buildings of varying ceilings are converted to equate with a 'standard' ceiling. The duration is multiplied by the factor below to give the standardised duration.

<b>Ceiling Height</b>	<b>Factor</b>
Zero to 2.99 metres	2.60
3.00 to 3.49 metres	2.30
3.50 to 4.49 metres	2.00
4.50 to 4.99 metres	1.60
5.00 to 5.49 metres	1.47
5.50 to 5.99 metres	1.37
6.00 to 6.49 metres	1.30
6.50 to 6.99 metres	1.25
7.00 to 7.49 metres	1.20
7.50 to 7.99 metres	1.16
8.00 to 8.99 metres	1.09
9.00 to 9.99 metres	1.03
10.00 to 10.99 metres	0.98
11.00 to 11.99 metres	0.94
12.00 to 12.99 metres	0.91
13.00 to 13.99 metres	0.88
14.00 to 14.99 metres	0.85
15.00 to 15.99 metres	0.83
16.00 to 16.99 metres	0.79
17.00 to 17.99 metres	0.76