

2021 MAAC Outdoor Free Flight Rule Book

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Outdoor Free Flight Regulations

As authorized by the MAAC Free Flight Committee – May 2021

Under authority of the Aero Club of Canada, Canadian representative of the Fédération Aéronautique Internationale, worldwide governing body of all sporting aviation, the following model aircraft classifications and regulations enacted by the Free Flight committee are hereby prescribed by the Model Aeronautics Association of Canada for outdoor free flight competition in Canada.

It shall be noted that wherever persons are referred to in this document in one gender it shall be interpreted as meaning either gender.

1. CONTEST PROCEDURES

Contests will be sanctioned by MAAC provided they meet the following requirements:

1.1 Sanction Applications

All contest sanction applications and applicable fees should be mailed to MAAC at least 30 days in advance of the competition. See section 2.3 for special requirements for regional contests.

1.2 Contest Report

Contest directors must report the results of a contest within seven days of the competition. This report shall contain the names and MAAC numbers and the results for at least the first three competitors in each event. In National competitions, at least the first five competitors' names and results in each event must be reported. Even though minimums are provided here, it is preferred that all competitors names and results be recorded when possible.

Should the contest director find it necessary, in the event of an ambiguity contained within the rules, to define the "intent" of a rule, a full report must be made to the FF committee.

1.3 Contest Site

Contest directors must choose a flying area of reasonable terrain. In the case of Free Flight, this terrain must be fairly level, offering no additional advantage of height over the surrounding terrain.

1.4 Contest Equipment

Contest directors must take all necessary steps to have proper equipment available for the accurate processing of entries. This equipment shall include accurate weighing and measuring equipment, pull-test equipment, etcetera, as may be required to ensure efficient conduct of all scheduled events of competition. Contestants must arrange for the provision of their own stop watches for the timing of engine runs, flights, etc.

1.5 Contest Control - Contest Directors

must be in attendance at any competition over which they have jurisdiction.

The contest director shall appoint event directors as necessary to administer directly particular phases of competition under the CD's general authority.

Event directors are chosen, for their ability, at the discretion of the CD and are not necessarily required to possess a CD license.

1.6 Eligibility to Compete

Contest directors must verify that all competitors are members of MAAC or of any model organization affiliated either directly or indirectly with the FAI which has a reciprocal agreement with MAAC.

Only current members of MAAC or an affiliate organization may compete in sanctioned contests.

Contest directors may compete in all sanctioned competitions.

1.7 Disqualification

Exclusion - Contestants may be disqualified or excluded from any or all events if guilty of an infraction of contest rules, unsportsmanlike, dangerous or discourteous conduct, or conduct detrimental to the well-being of model aviation.

If, after entry in an event, a contestant is found ineligible to compete in that event, all of the contestant's flights in that event are to be cancelled and any awards won in that event returned. If judged guilty of willful misconduct, the contestant shall lose all claims to awards and shall be liable to expulsion from the contest site. Repeated or particularly vicious acts of willful misconduct may result in suspension or revocation of the model flyer's membership.

If action is taken to suspend or revoke a model flyer's membership, he shall have 14 days after notification in which to present, in writing, the reasons why such action should not be taken.

1.8 Protests

Any protests by a contestant at a meet must be presented to the contest director within an hour after the meet has ended. The protest, in writing, must describe the action and the people concerned. Appeals of the contest director's decision may be made to the Free Flight committee within three weeks.

1.9 Interpretation of Regulations

The Free Flight Committee of the Model Aeronautics Association of Canada shall be the final authority in the interpretation and execution of these Free Flight regulations.

2. CONTEST CLASSIFICATION

Sanctions are issued under the following classifications:

2.1 National Contest

A national contest is a MAAC administered contest intended for application across the country as a whole, with unrestricted entry.

A national contest may not necessarily be held in a centralized location and trophies or prizes may not necessarily be awarded.

2.2 Regional contest (AAA)

A regional contest (AAA) is a major contest with unrestricted entry, at least eight (8) events, and prizes (or awards) through third places.

NOTE: To ensure sufficient publicity, applications for a regional contest should be made at least three (3) months in advance.

2.3 Open Contest (AA)

An open contest is a contest run with unrestricted entry and with prizes (or awards) through two (2) or more placings.

2.4 Closed Contest (A)

A closed contest may have restricted entry - such restrictions must be specified.

3. RECORDS

3.1 National Records

National records are recognized for all age classifications in all National record categories.

These records are open to any licensed MAAC member and once established, shall continue until exceeded. Upon there being a rule change established for any category, and such change might reasonably be expected to alter the performance achievable, the record up to that date shall be kept, with the year of the rule change noted in parentheses, and a new record shall be established for subsequent contests.

3.2 Record Application

Report of a record performance may be sent to MAAC by either the contest director or the contestant. There shall be no time limit set on the date of such notification.

3.3 Ratification

National records shall be ratified on production of all pertinent proof of performance and compliance with the regulations of MAAC as herein set out. Ratification of Canadian records is withheld until such time as receipt of the contest director's report officially confirms the record performance claimed.

3.4 Record Attempts during the Course of Normal Competition

Records may be established at any sanctioned competition, in Canada or elsewhere, as long as the rules of competition are compatible with those in Canada. The rules for qualifying flights and subsequent fly-off flights must be followed and it shall be permissible for the contestant to continue recording flights in the normal manner until such time as a maximum is not achieved, even if other contestants (if any) have dropped out of competition at an earlier stage.

Flights recorded for a National Record must take place during the normal hours of operation of the contest.

4. GENERAL REQUIREMENTS OF COMPETITION IN NATIONAL CATEGORIES

The following regulations shall apply to all categories unless otherwise specifically stated:

4.1 Identification

All models entered in competition, excepting indoor and scale models, shall be identified by the contestant's MAAC number permanently affixed to the upper side of the wing.

Height of the numerals must be at least one inch, or one-third of the wing-root chord, whichever is less. Both height and width shall be such as to enable ready recognition. (Example: Letter "O" should have a width of approximately half the height or wider and the other digits should be of corresponding proportion.)

4.2 Preparation For Flight

The flyer must start and regulate the engine of free flight gas models, wind the motor of rubber models and operate the launching apparatus of gliders.

4.3 Number of Models

Unless otherwise specified, a maximum of two models per event may be allowed, provided both models have been processed. Parts of these models may be interchanged.

4.4 Change of Model Class

Models entered in one event may be entered into other events in the same contest at the contestant's option. The changing of one motor for that of another is permissible. The contestant must declare to the timekeeper which event a flight is to be recorded in before launching the model if it is entered in more than one event on that day. Failure to do so will result in the score for that flight not being recorded in either event.

Contest organizers should attempt, as far as is possible, to avoid having more than one event in which the same model, without modification, could compete on the same day.

4.5 Multiple Event Participation

For purposes of competition or establishment of records, no single flight shall be registered as official in more than one event.

4.6 Forbidden Practices

The following practices are not permitted in sanctioned free flight competition:

- a. The use of metal-bladed propellers
- b. the use of internal combustion engines in which gasses other than air at normal atmospheric pressure enter their intake system
- c. the use of the fuel additive known as tetra-nitromethane
- d. the use of liquid fuel jet engines

4.7 Maximum Weight

No free flight model shall have a flying weight of more than 4.4 pounds (2 kilograms).

4.8 National Categories

The following categories are officially recognized by MAAC for national competition:

MAAC

- a. Class ½A Gas
- b. Class A Gas
- c. Class B Gas
- d. Class C gas
- e. Class D gas
- f. Unlimited Rubber
- g. P30 Rubber
- h. Unlimited Towline Glider

- i. Hand Launch Glider
- j. Rocket Power
- k. Catapult Glider
- l. Flying Scale Power
- m. Flying Scale Rubber

FAI

- n. F1A - Nordic A-2
- o. F1B - Wakefield
- p. F1C – 2.5cc Power
- q. F1E – Glider (Magnet Steered)
- r. F1G - Coupe d'Hiver
- s. F1H - A1 Glider
- t. F1J - 1cc Power
- u. F1K – CO₂
- v. F1P – 1cc power (fixed surfaces)
- w. F1Q – Electric Power (Large)
- x. F1S – Electric Power (Small)

5. MAAC OUTDOOR GENERAL

5.1 General Requirements

The following regulations apply to all MAAC categories except where otherwise stated.

5.2 Number of Flights

Each contestant shall be allowed two attempts to make each official flight, other than flyoff flights. The time for the second of the two attempts shall be recorded as the flight time even if it is below that of the first attempt.

5.3 Official Flight

An official flight occurs when the model remains in flight for 40 seconds or more and when the engine run does not exceed the established maximum.

Flights of less than 40 seconds may be declared official at the option of the contestant, provided the engine run does not exceed the established maximum.

The contestant's decision is to be made immediately and cannot be reversed later.

5.4 Unofficial Flight

An unofficial flight occurs when the flight is of less than 40 seconds duration, if the contestant's option described in 5.3 is not exercised.

When the model collides with another model after flight timing begins, the contestant shall have the option of declaring the flight to be unofficial.

The contestant's decision is to be made immediately and cannot be reversed later.

The time of unofficial flights is not recorded.

Flights in which the engine run exceeds the established maximum are automatically unofficial, as are flights during which parts are dropped, or those in which the model is aided at takeoff or during flight by the flyer or by artificial means.

5.5 Model Damage

Damage to models or propellers caused by striking runway or other obstacles which results in a piece of the model or propeller being dropped, does not constitute reason for the flight to be declared unofficial.

5.6 Method of Launch

Unless specified otherwise, models shall be hand-launched. A model is hand-launched when it is released or thrown into flight directly from the hands of the contestant, without other assistance.

The model shall not be launched from a height greater than the contestant's normal reach above the ground.

5.7 Timing of Flights

Time starts the instant a model is released for flight and includes length of engine run.

Time ends when the model returns to the ground, meets an obstruction which prevents further flight, passes from sight of the timer, or when flight time exceeds the specified maximum.

The timer may move in any direction no more than 200 feet from the takeoff point in order to keep the model in sight, so long as he remains on the ground. The use of binoculars as an aid to timekeeping is permissible.

5.8 Out of Sight Flights

Should the model pass from the timer's sight, the stop watch shall be permitted to run for an additional 10 seconds. Should the model reappear, timing is continued. Should it fail to reappear within the 10 seconds allotted, the watch shall be stopped, 10 seconds deducted from the time indicated and the results recorded as the flight time.

5.9 Scoring of Flights

Scoring time shall be the total elapsed time of the required number of official flights, plus any additional qualified flights required by the specific event.

Each flight duration shall be scored to the last elapsed whole second.

5.10 Flyoffs

Tie-breaking flights shall take place as specified by specific class or category rules, but such do not preclude the contestant's option for flying for purposes of a record attempt at any time of his choosing.

6. GAS POWER

6.1 General

A free flight gas model is a model airplane powered by an internal combustion engine(s), which is flown without remote control or guide line from the ground. No restrictions are placed upon the design of such models other than the requirements listed in these regulations.

Note: An exception to the “without remote control” provision is that an irreversible dethermalising action to end the flight may be operated remotely.

6.2 Classification

Free flight gas models are divided into the following categories according to piston displacement of engine(s):

- Class ½A — 0.001 to 0.050 cubic inches (0.01 to 0.82 cc)
- Class A — 0.051 to 0.200 cubic inches (0.83 to 3.25 cc)
- Class B — 0.201 to 0.300 cubic inches (3.26 to 5.00 cc)
- Class C — 0.301 to 0.400 cubic inches (5.01 to 6.50 cc)
- Class D — 0.401 to 0.670 cubic inches (6.51 to 11 cc)

In addition to the displacement classification above, there shall be a further classification of model types as below:

- Classic Power. These models shall have all surfaces fixed throughout the flight. It shall be allowable for surfaces (such as the tail surface) to be irreversibly moved in order to end the flight (dethermalizer). Gearing of engines and folding propellers are not allowed.
- Open Power. The flight characteristics of open power models shall be allowed to be modified in flight by moving the flying surfaces in response to a pre-programmed on-board timer sequence. Gearing of engines and folding propellers are allowed.

6.3 Engine Runs and Flight Maximums

Engine runs and flight maximum times may be established in one of three categories, categories I, II, or III, depending upon the suitability of field size and conditions. The CD shall be authorized to change either or both of the engine run or maximum flight times if conditions on the day of the contest warrant such change. No change may be made in any event after an official flight has been recorded in that event. Every effort must be made to inform all contestants of any change.

Engine run times shall be recorded to the fully elapsed 0.1 sec interval. eg. 5.09 seconds reading on the watch shall be recorded as 5.0 seconds, 6.12 seconds reading on the watch shall be recorded as 6.1 seconds. Flight times shall be recorded to the fully elapsed 1 second interval. eg. 173.82 seconds on the watch shall be recorded as 173 seconds.

All flights shall be hand launched.

The sequence of flights shall be three (3) qualifying flights, followed by a series of fly-off flights, a contestant's scoring shall end with the first flight after the qualifiers that does not reach the specified maximum. No contestant shall proceed to record fly-off flight scores if he/she has not recorded three maximums in the qualifying flights. Tied scores, either at the end of the qualifying flights (if the tied scores are not all maximums) or at the fly-off stage, shall be decided by a further

flight by each tied contestant. In the case of a tie-breaker for non-maxed scores the extra score shall only decide the placing of the tied contestants but shall not be added to the score recorded. The following table provides the prescribed timings (engine run/flight total).

Cat	Qualifiers	First Fly-off	Second Fly-off	Third and succeeding Fly-offs
I	12 sec/300 sec	10 sec/300 sec	8 sec/300 sec	8 sec/300 sec
II	9 sec/180 sec	7 sec/180 sec	5 sec/180 sec	5 sec/180 sec
III	7 sec/120 sec	5 sec/120 sec	5 sec/120 sec	4 sec/150 sec

6.4 Scoring of Flights.

Scoring shall be the total elapsed time of three (3) qualifying flights plus the total time of all qualified fly-off flights.

7. RUBBER POWERED UNLIMITED

7.1 General

A rubber powered model is a model airplane which is powered by the stored energy of deformed rubber. No restrictions are placed upon the design of such models other than the requirements listed in these regulations.

7.2 Maximum Flight Time

A three (3) minute maximum shall be applied to each of three flights. If the three official flights total the maximum time required, then a series of flyoff flights may be taken. The maximum duration for the fourth flight shall be four (4) minutes; each successive flyoff flight, thereafter, shall have the maximum flight time increased by one minute and such flights will continue until the contestant's model fails to reach the duration limit for that flight.

7.4 Scoring of Flights

Scoring ~~time~~ shall be the total elapsed time of three (3) flights plus the total time of the qualified flyoff flights.

8. P30 RUBBER

8.1 Specifications

Models shall conform to the following specifications;

- A. No dimension of the model shall exceed 30 inches when it is in assembled condition.
- B. The minimum weight of the model without rubber motor shall be 40 grams.
- C. The rubber motor shall not exceed 10 grams.
- D. The propeller shall be a commercially available plastic freewheeling propeller between 23 and 25 centimeters (9.05 and 9.84 inches) in diameter. Only the following changes will be allowed:
 - a. Flashing may be removed.
 - b. Balancing by the addition of weight to one blade will be allowed.
 - c. Enlarging the hole of the propeller hub will be allowed in order to accept a larger diameter shaft and/or a bushing cut from metal tubing.

8.2 Official Flight

A flight of more than 20 seconds shall be considered an official flight; there shall be no limit to the number of attempts allowed in order to record three (3) official flights.

8.3 Scoring of Flights

The maximum recorded duration for each flight shall be 120 seconds; if a tie exists after three (3) flights have been recorded, then each successive flight shall have a maximum duration of 30 seconds more than the previous flight.

9. TOWLINE GLIDER UNLIMITED

9.1 General

A towline glider is a non-powered model which is towed into the air by the contestant by means of an inextensible towline.

NOTE: Inextensible as herein applied may be taken to refer to such material as may be classed "nominally inextensible", and for simplicity should be applied to eliminate the use of lines so obviously elastic as to give an unfair advantage in their use, the ultimate purpose of the towline being to launch the aircraft from a maximum of 164 feet above the contestant.

No restrictions are placed on the design of such models other than the requirements listed in these regulations.

There shall be two classifications of glider within this category:-

- Straight Tow – in which the towline is attached to the model by a ring passing over a fixed, open-ended, hook on the underside of the fuselage which will release the towline when tension is removed.
- Circle Tow – in which the towline is attached to the model through a closed, spring-loaded, hook which will only release the towline when a certain pre-set tension is attained – allowing the flier to search for thermal activity in various parts of the field before releasing the model for flight.

The flying surfaces of the model may not be altered during flight except for an auto-rudder to introduce a turn upon release of the towline and a dethermalizer actuated either by a timer on board the model or irreversibly by radio signal from the ground.

9.2 Towline Specifications

The towline length shall be 164 feet maximum (50 meters). To facilitate observation and timing, the towline must be fitted with a pennant having a minimum area of 38.75 square inches (2.5 square decimeters). This pennant shall be affixed in the proximity of the aircraft end of the towline.

Alternate bungee launch system. In recognition of the fact that many fliers who would like to participate in outdoor glider events are restricted from doing so because of the physical demands of towing, an alternative is allowed. Gliders in this category may be launched from an inextensible towline no more than 150 feet (45.73 m) in length, attached to no more than 0.88 oz (25 g) of rubber strip. The rubber strip must be firmly attached to a stake in the ground.

9.3 Winches

For convenience, the towline may be wound on a winch or similar device. If this device is released by the contestant before the towline has released from the model, the flight shall be disqualified and scored as zero time.

9.4 Timing of Flights

Timing shall commence when the towline is released from the model.

9.5 Maximum Flight Time

A three (3) minute maximum shall be applied to each of three flights. If the three official flights total the maximum time required, then a series of flyoff flights may be taken. The maximum duration for the fourth flight shall be four (4) minutes; each successive flyoff flight, thereafter, shall have the maximum flight time increased by one minute and such flight will continue until the contestant's model fails to reach the duration limit for that flight.

9.6 Scoring of Flights

Scoring time shall be the total elapsed time of three (3) flights plus the total time of the qualified flyoff flights.

9.7 Contest Categories

Contests may have separate events for each type of glider, or a combined event. Results of a combined event shall not be separated by towline type.

10. HAND-LAUNCHED GLIDER

10.1 General

An outdoor hand-launched glider is a non-powered model aircraft relying only upon the energy imparted by the contestant at the time of launching for initial impetus.

No restrictions are placed on the design of such models other than requirements listed in these regulations.

10.2 Number of Models

Each contestant shall be allowed a maximum of three models in this event. He may use any or all to complete his flights.

10.3 Official Flight

All flights are official, regardless of duration.

Flights during which any part is dropped shall be declared an official attempt with no time recorded.

10.4 Flight Maximum

Two (2) minutes.

10.5 Number of Flights

Each contestant shall be allowed a total of six official flights; if a three flight total of six minutes has been achieved (whether or not all six flights have been made) a series of flyoff flights, having a maximum of two minutes, shall continue until the flier fails to achieve said two minute maximum duration limit.

10.6 Scoring of Flights

Scored time shall be the total elapsed time of the best three (3) of not more than six (6) official flights, plus that of qualified additional flights.

11. CATAPULT GLIDER

11.1 General

An Outdoor Catapult Glider is powered by the energy of stretched loops of rubber strip as further defined below.

11.2 Characteristics.

The glider shall have a rigid wing. Auto surfaces, folders, sliders, Rogallo wings and the like are prohibited.

11.3 Launching. Launching shall be by means of a hand-held catapult, as described below. During launching, the contestant must hold the catapult in one hand and release the model from the other hand.

A hand-held catapult is composed of a dowel (or any rod shaped object) not exceeding six (6) inches in length and a two-strand loop of $\frac{1}{4}$ inch (or equivalent, i.e. four strands of $\frac{1}{8}$ ") rubber (FAI, Pirelli, etc.) that has a finished length of nine (9) inches. One end of the rubber loop shall be attached to one end of the dowel. The hand-held catapult is to be provided by the contestant but is subject to approval by the Contest Director. More than one (1) hand-held catapult may be used in any given contest.

11.4 Number of Models

Each contestant shall be allowed a maximum of three models in this event. He may use any or all to complete his flights.

11.5 Official Flight

All flights are official, regardless of duration.

Flights during which any part is dropped shall be declared an official attempt with no time recorded.

11.6 Flight Maximum

Two (2) minutes.

11.7 Number of Flights

Each contestant shall be allowed a total of six official flights; if a three flight total of six minutes has been achieved (whether or not all six flights have been made) a series of flyoff flights, having a maximum of two minutes, shall continue until the flier fails to achieve said two minute maximum duration limit.

11.8 Scoring of Flights

Scored time shall be the total elapsed time of the best three (3) of not more than six (6) official flights, plus that of qualified additional flights.

12. ROCKET POWER

12.1 General

An outdoor rocket-powered model is a model airplane propelled by a reaction engine.

12.2 Power Unit

Rocket engines shall be as manufactured by 'Jetex', 'Jet-X' or equivalent and shall use Jetex/Jet-X type fuel in equivalent amounts to that supplied for use in such engines.

12.3 Mounting

For safety, all units shall be firmly mounted and equipped with a metal tether to effectively prevent the power unit from separating from the model.

12.4 Official Flights

An official flight occurs when the model remains in the air for 40 seconds or more.

12.5 Number of Flights

Each contestant may make six (6) attempts to make three (3) official flights, to a maximum flight time of two minutes. If the contestant's three official flights total six minutes he shall then be allowed one attempt to make a fourth official flight of unlimited duration.

13. FLYING SCALE POWER

13.1 To be added.

14. FLYING SCALE RUBBER

14.1 To be added.

15. FAI GENERAL

NOTE: The following FAI general rules are only partial rules and serve primarily to describe the events that are covered. Complete rules are contained in the FAI Sporting Code. The current FAI Sporting Code shall apply for all FAI matters.

15.1 Number of Flights

Each competitor is entitled to either five or seven official flights in F1A, F1B, F1C, and F1P; seven official flights in F1Q; and five official flights in F1E, F1G, F1H, F1J, F1K, and F1S.

15.2 Number of Attempts

In the case of an unsuccessful first attempt for an official flight, the competitor has the right to a second attempt.

15.3 Definition of an Attempt

There is an attempt when the model is launched, and:

- A. The total duration of the flight is less than 20 seconds after release of the model.
- B. The engine run exceeds the specified time, from the release of the model.
- C. The glider returns to the ground without release of the cable.
- D. The competitor runs so far away from the timekeepers that moment of release of the cable cannot properly be established.
- E. When a part of the model becomes detached during the launch or during the flight time.

15.4 Definition of Official Flight

- F. A first attempt equal to or greater than 20 seconds (with the engine run equal to the specified time or less).
- G. A second attempt, whatever the time achieved, unless any of the provisions B, C, D, or E under section 13.3 are violated in which case the score shall be recorded as zero.

15.5 Classification

The total time of the required number of flights of each competitor is taken for the final classification.

In order to decide individual placing when there is a tie, additional deciding flights shall be made immediately after the last flight of the event has been completed. The maximum for the first deciding flight shall be 5 minutes and the maximum shall be increased by 2 minutes for each subsequent flight. For meteorological reasons, poor visibility, or model recovery problems, a flyoff

may be postponed to be flown as early as possible on the following morning before thermal activity; in that event the maximum duration of the flight will be a minimum of 10 minutes.

15.6 Timing

The total flight time is taken from the release of the model (from the launching cable for gliders) to the end of the flight. The time of the engine run for power models is considered ended when the propeller stops. The timekeepers must familiarize themselves with the colour and shape of the model in order to recognize it during the flight.

The flight is considered ended when the model touches the surface of the earth, encounters an obstacle which is definitely terminating its flight or when it definitely disappears from the timekeepers' sight. If the model disappears behind some obstacle or in clouds, the timekeepers are to wait for 10 seconds; should the model not reappear, timing will cease and 10 seconds will be subtracted from the flight time.

The flight must be timed by two timekeepers with stop watches, at least one timekeeper in each group must be equipped with binoculars. The timekeepers must remain within a circle of 10 meter radius during flights. The time recorded is the mean of the two times registered by the timekeepers, but reduced to the nearest whole number of seconds below the resulting mean time.

If the model goes out of sight of the timekeeper without binoculars, he shall not stop his watch, but wait until the other timekeeper gives him the "stop" signal. The same procedure shall be followed by the timekeeper with binoculars if the model goes out of the field of the binoculars and he is not able to retrieve it again while the other still sees it.

15.7 Number of Helpers

The competitor is entitled to have one helper.

Official FAI Classes

16. F1A - NORDIC A/2 GLIDER

16.1 Definition

Model airplane 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 specifications when the surfaces are in minimum and maximum extended mode.

16.2 Characteristics

Surface area 32 to 34 square decimeters (496 to 527 square inches). Minimum weight, 410 grams (14.46 ounces). Maximum loading, 50 grams per square decimeter (16.43 ounces per square foot). Maximum length of launching cable loaded by 5 kilograms (11.02 pounds), 50 metres (164 feet).

16.3 Launching Devices

The glider must be launched by means of a cable made of a single homogenous material and its length, including the ring and the launching device, shall not exceed 50 metres (164 feet) when subjected to a tensile load of 5 kilograms (11.02 pounds). This tensile load shall be applied by means of an appropriate apparatus before each flight, except when the cable and launching device is impounded by the timekeepers immediately after towing.

Launching of the glider by means of this cable may be carried out with the help of various devices such as winches, single or multiple pulley trains, or by running, etc. These devices, except the launching cable, must not be thrown by the competitor, under penalty of cancellation of the flight.

To facilitate observation and timing, the cable must be equipped with a pennant having a minimum area of 2.5 square decimeters (38.75 square inches).

All types of auxiliary stabilizing devices on the cable are forbidden. A parachute may be substituted for the pennant provided it is not attached to the model and remains packed and inactive until the release of the cable.

17. F1B - WAKEFIELD

17.1 Definition

Model airplane which is powered by an extensible motor and in which lift is generated by the 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 specifications when the surfaces are in minimum and maximum extended area mode.

17.2 Characteristics

Surface area 17 to 19 square decimeters (263.5 to 294.5 square inches). Minimum weight of model less motor(s), 200 grams (6.99 ounces). Maximum loading, 50 grams per square decimeter (16.43 ounces per square foot). Maximum weight of motor(s) lubricated, 30 grams (1.048 ounces).

17.3 Launching

Launching is by hand, the competitor being on the ground (jumping allowed). Each competitor must wind his motor and launch the model himself.

18. F1C – POWER (LARGE)

18.1 Definition

Model airplane in which the energy is provided by a piston type engine and in which lift is generated by the 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 specifications when the surfaces are in minimum and maximum extended mode.

18.2 Characteristics

Maximum swept volume of engine(s), 2.5 cubic centimetres (.1526 cubic inches). No extensions whatever are allowed to the exhaust opening(s) of the engine. Minimum total weight, 300 grams per cubic centimetre swept volume of engine(s) (10.58 ounces per cubic centimetre or 173.4

ounces per cubic inch). Minimum loading, 20 grams per square decimeter (6.55 ounces per square foot). Maximum loading, 50 grams per square decimeter (16.43 ounces per square foot). Maximum duration of engine run, 5 4 seconds from release of model.

Fuel to a standard formula for glow plug and spark ignition engines will be supplied by the organizers. The composition shall be as follows: 80% methanol, 20% lubricant (castor oil or synthetic equivalent). Fuel for compression ignition engines is not restricted. Before each attempt for an official flight, the fuel tank must be rinsed (washed out) with standard formula fuel.

18.3 Launching

Launching is by hand, the competitor being on the ground (jumping allowed). Each competitor must start and regulate the engine or engines and launch the model himself.

19. F1E MAGNET STEERED GLIDER

19.1 Definition

Model aircraft not provided with a propulsion device and in which lift is generated by aerodynamic forces acting on surfaces that remain fixed in flight, except for changes of incidence. Variable geometry or area is not allowed.

The glider can be equipped with a steering device, which may use a direction sensor and measurement of flight time. The steering device must not use any measurement of geographical location and must not be controlled remotely during the flight.

19.2 Characteristics of Gliders with Automatic Steering F1E

Maximum surface area (St)	150 dm ²
Maximum loading	100 g/dm ²
Maximum flying weight	5 kg

F1E models may use radio control only for irreversible actions to control dethermalisation of the model. Any malfunction or unintended operation of these functions is entirely at the risk of the competitor.

20. F1P POWER (SMALL – FIXED SURFACES)

20.1 Definition

A model aircraft in which the energy is provided by a piston type motor and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight, except for changes of incidence. Variable geometry or area is not allowed.

20.2 Characteristics of Model Aircraft with Piston Type Motors

Minimum projected wing surface area	26 dm ²
Maximum projected wing span	1.5m
Minimum total weight	250 g
Maximum duration of motor run	7 seconds from release of model.

Maximum swept volume of motor(s) 1,00 cm³

Only one change may be made to the wing or horizontal tail incidence during the flight before dethermalising.

No extensions whatsoever are allowed to the exhaust opening(s) of the motor(s).

The motor must drive the propeller directly, no gears allowed

Mechanical brakes are not allowed for stopping the motor.

Fuel constituents are not restricted.

F1P models may use radio control only for irreversible actions to control dethermalisation of the model. This may include stopping the motor if it is still running. Any malfunction or unintended operation of these functions is entirely at the risk of the competitor.

21. F1Q ELECTRIC (LARGE)

21.1 Definition

Model aircraft which is powered by (an) electric motor(s) and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed in flight, except for changes of incidence. Models with variable area (eg folding wings) are not permitted.

21.2 Characteristics

Nickel Metal Hydride (NiMH) and Lithium (Li) batteries can be used.

Lithium type battery packs must be in "as manufactured" condition with the covering around the cell surface. If more than one cell is used a balancer connector must be fitted.

External Battery packs are required to have a safety tether to the fuselage.

Safety locks must be used to prevent unintentional restarting of motor(s) after motor(s) have been stopped.

The motor run time will be determined by a maximum energy amount. In addition, motor runs over 30 seconds are regarded as overruns. The energy budget of each model is 3 joules per gram of the total weight. For energy calculations, weight exceeding 550 grams is to be ignored.

Models must have provision for connecting a Static Energy Test (SET) device between the battery and the model's system via 3.5 mm male and female bullet connectors. The connectors from the battery should be male positive and female negative. It is the responsibility of the competitor to supply any adapters needed to connect to the SET

Energy limitation will be by an energy limiter. The allowed energy amount starts to be calculated with the release of the start button and finishes when the ESC has stopped supplying energy to the motor. The energy limiter has to calculate the energy consumed in real time. After coming to the end of the limited energy supply, the motor(s) must stop irreversibly.

For energy limit verification, a SET is to be connected to the model to allow measurements to confirm the energy used between the release of the start button and until the ESC has stopped supplying energy to the motor. To synchronize the time of release of the start button the model must include a cable connected in parallel with the start button and terminated with a 2-pin,

2.54mm pitch female connector. The SET must store and display energy amount used and motor run time.

F1Q models may use radio control only for irreversible actions to control dethermalisation of the model. This may include stopping the motor if it is still running. Any malfunction or unintended operation of these functions is entirely at the risk of the competitor.

The number of models eligible for entry by each competitor is four.

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22. F1G COUPE d'HIVER

22.1 Models shall conform to the following specifications:

- a. Maximum weight of lubricated motor - 10 grams (.35 ounces).
- b. Minimum model weight (without rubber) - 70 grams i.e. 70 grams for model, 10 grams rubber.

22.2 Two attempts shall be permitted for each official flight.

22.3 Each competitor is allowed three models to complete five official flights, launching by hand.

22.4 The maximum recorded duration for each flight is two minutes (120 seconds).

22.5 An unofficial flight (unsuccessful attempt) is one which:

- c. Has a duration of less than 10 seconds.
- d. Detaches a component in flight.

22.6 The total of five flights is taken for the final classification.

22.7 The total time of the required number of flights of each competitor is taken for the final classification.

In order to decide individual placing when there is a tie, additional deciding flights shall be made immediately after the last flight of the event has been completed. The maximum for the first deciding flight shall be 3 minutes and the maximum shall be increased by 2 minutes for each subsequent flight.

23. F1H NORDIC A1 GLIDER

23.1 Models shall conform to the following specifications:

- a. Total area of flying surfaces shall not exceed 18 square decimeters (279 square inches).
- b. Minimum weight 220 grams (7.76 ounces).

23.2 Launching

Launching is by means of an inextensible towline not exceeding 50 metres (164 feet) under a tensile load of 2 kilograms (4 pounds 6.5 ounces).

23.3 Two attempts shall be permitted for each official flight.

23.4 Each competitor is allowed three models to complete five official flights.

23.5 The maximum recorded duration for each flight is two minutes.

23.6 An unofficial flight (unsuccessful attempt) is one which:

- a. Has a duration of less than 20 seconds
- b. Detaches a component in flight.

23.7 The total time of the required number of flights of each competitor is taken for the final classification.

In order to decide individual placing when there is a tie, additional deciding flights shall be made immediately after the last flight of the event has been completed. The maximum for the first deciding flight shall be 3 minutes and the maximum shall be increased by 2 minutes for each subsequent flight.

24. F1J POWER (SMALL)

24.1 Models are to be powered with piston engines with a swept volume not exceeding 1 cubic centimetre (.061 cubic inches). Minimum total weight 160 gram (5.64 ounces). Maximum duration of engine run, 5 seconds from release of model.

There are no restrictions on fuels or minimum/maximum total surface areas.

24.2 Two attempts shall be permitted for each official flight.

24.3 Each competitor is allowed three models to complete five official flights.

24.4 The maximum recorded duration for each flight is two minutes.

24.5 An unofficial flight (unsuccessful attempt) is one which:

- a. Has a duration of less than 20 seconds.
- b. Detaches a component in flight.

24.6 The total time of the required number of flights of each competitor is taken for the final classification.

In order to decide individual placing when there is a tie, additional deciding flights shall be made immediately after the last flight of the event has been completed. The maximum for the first deciding flight shall be 3 minutes and the maximum shall be increased by 2 minutes for each subsequent flight.

25. F1K CO2

25.1 Definition

A model aircraft which a reciprocating motor is powered by pressurized CO₂ gas and in which lift is generated by the aerodynamic forces acting on surfaces remaining fixed in flight, except for changes of incidence. Variable geometry or area is not allowed.

25.2 Characteristics

Minimum weight (without CO₂) 75 g
Maximum surface area (St) 12 dm²
Maximum volume of the CO₂ tank(s) 2 cc (connecting tubes count only if their outer diameter is over 2 mm).

The number of models eligible for entry by each competitor is three (3).

F1K models may use radio control only for irreversible actions to control dethermalisation of the model. This may include stopping the motor if it is still running. Any malfunction or unintended operation of these functions is entirely at the risk of the competitor.

26. F1S ELECTRIC (SMALL)

26.1 Models shall conform to the following specifications:-

Nickel Cadmium (NiCad), Nickel Metal Hydrate (NiMH) and Lithium (Li) batteries can be used. Only 2 cell Lithium batteries or up to 6 cell Nickel cells can be used.

Maximum duration of motor run 10 seconds during the regular flights.
Minimum weight 120 g
Maximum wing span 91.44 cm (36 inches)

The number of models eligible for entry by each competitor is three.

F1S models may use radio control only for irreversible actions to control dethermalisation of the model. This may include stopping the motor if it is still running. Any malfunction or unintended operation of these functions is entirely at the risk of the competitor.