

## RADIO CONTROL FREESTYLE AEROBATICS TO MUSIC

### 6.1. CLASS F6A – ARTISTIC AEROBATICS

#### 6.1.1 Definitions of an Artistic Aerobatics Aircraft

A model airplane that is aerodynamically manoeuvred by control surface(s) in attitude, direction and altitude by a pilot on the ground using radio control, or a helicopter.

An R/C helicopter is a heavier-than-air model aircraft that derives all of its lift and horizontal propulsion from a power driven rotor system(s) rotating about a nominally vertical axis (or axes). Fixed horizontal supporting surfaces up to 4 percent of the swept area of the lifting rotor(s) are permitted. A fixed or controllable horizontal stabiliser of up to 2% of the swept area of the lifting rotor(s) is permitted. Ground effect machines (hovercraft), convertiplanes or aircraft that hover by means of propeller slipstream(s) deflected downward are not considered to be helicopters.

#### 6.1.2 General characteristics of Radio Controlled Artistic Aerobatics Aircraft:

##### 6.1.2.1. Propeller-driven aircraft:

Maximum overall wing span: ...2 m

Maximum overall length: .....2 m

Maximum total weight: .....5 kg without fuel

Power source limitations: any suitable power source may be utilised except those requiring solid propellants, gaseous or liquefied gaseous fuels. Electric powered aircraft are limited to a maximum of 42 Volts for the propulsion circuit.

##### 6.1.2.2. Jet-powered aircraft:

Minimum overall wing span: ....1.80 m

Maximum total weight: .....15 kg without fuel

Maximum nominal engine thrust: 150 N

##### 6.1.2.3. Helicopter

Maximum rotor swept area: .. 300 dm<sup>2</sup>

**Note:** The swept area of the lifting rotor may not exceed 300 dm<sup>2</sup>. For helicopters with multiple rotors whose rotor shafts are more than one rotor diameter apart the total swept area of both rotors cannot exceed 300 dm<sup>2</sup>. For helicopters with multiple rotors whose rotor shafts are less than one rotor diameter apart the swept area of both rotors (counting the area of superposition only once) cannot exceed 300 dm<sup>2</sup>.

Maximum total weight: ..... 6 kg without fuel

An electronic rate gyro is permitted on the yaw axis only.

All-metal main or tail rotor blades are prohibited.

##### 6.1.2.4.

Paragraph B.3.1 of Section 4b (Builder of Model) is not applicable to class F6A.

Radio equipment shall be of the open loop type (i.e. no electronic feedback from the aircraft to the ground). Auto-pilot control utilising inertia, gravity or any type of terrestrial reference is prohibited. Automatic control sequencing (pre-programming) or automatic control timing

devices are prohibited. It is highly recommended to use the 2.4 GHz RC systems to improve substantially the safety of flying in front of the spectators.

Example:

Permitted:

- Control rate devices that are manually switched by the pilot.
- Any type of button or lever control that is initiated and terminated by the pilot.
- Manually operated switches to couple control functions.

Not permitted:

- Snap buttons with automatic timing mode.
- Pre-programming devices to automatically perform a series of commands.
- Auto-stabilisers ( "gyros" ) for automatic wing levelling.
- Propeller pitch change with automatic timing mode.
- Any type of voice recognition system.
- Any type of learning function involving manoeuvre to manoeuvre or flight to flight analysis.

### **6.1.3. Definition and Number of Helpers**

A helper may be a Team Manager, another competitor or an officially registered helper. Each pilot is permitted one helper during the flight. Two helpers may be present during the starting of the motor(s). The second helper may place the aircraft for take-off and retrieve the aircraft following the landing.

### **6.1.4. Number of rounds**

- 6.1.4.1. The competition consists of one or several qualifying rounds leading to a final round. The starting order for the initial round is established by the Organiser according to any suitable criterion. It is suggested that the starting order be established in reverse order of the competitors skill ranking (established by any generally accepted means) so as to increase the spectators' interest from the beginning to the end of the round.
- 6.1.4.2. For each competitor, a qualification round consists of one Music Free Style flight. A final round consists of one Music Compulsory and one Music Free Style flights.
- 6.1.4.3. All pilots are entitled to fly the first qualifying round. If there is a second qualification round, it will be open to no more than the top 80 % competitors. The number of competitors accessing the second round shall be determined by the Organiser before the beginning of the competition, and preferably in the preliminary competition information bulletin, according to the number of competitors and the time available. If more than two qualification rounds are flown, the Organiser shall similarly decrease the number of pilots accessing any subsequent round.
- 6.1.4.4. The final round shall be open to no more than the top 5 remaining competitors. The number of competitors accessing the final round shall be determined by the Organiser before the beginning of the competition, and preferably in the preliminary competition information bulletin, according to the number of competitors and the time available.
- 6.1.4.5. At the Organiser's discretion, access to any following round except the last one may be split into direct qualification for most of the competitors and indirect qualification for up to three (3) additional competitors to fill up the originally planned number for that round. In this case, all pilots not directly qualified may take part in an additional round to select the last qualified competitors.

- 6.1.4.6. The Organiser shall set up and display for each round a timetable stating the time each competitor will be allowed to start his flight.

#### **6.1.5. Definition of an attempt**

There is an attempt when the competitor is given permission to start.

**Note:** If the competitor fails to take off (lift off) within the 60 seconds allowed, he must immediately make room for the next competitor.

#### **6.1.6. Number of attempts**

Each competitor is entitled one attempt for each official flight.

**Note:** An attempt can be repeated at the contest director's discretion only when, for any unforeseen reason outside the control of the competitor, the aircraft fails to start (e.g. there is radio interference). Similarly, in a flight that is interrupted by any circumstance beyond the control of the competitor (e.g. sudden rainfall, music broadcast malfunction, etc.) , the competitor is entitled a re-fly.

#### **6.1.7. Definition of an official flight**

There is an official flight when an attempt is made, whatever the result.

Manoeuvres must be performed where they can be clearly seen by the judges.

If an aircraft is, in the opinion of the judges or the Contest Director, unsafe or being flown in an unsafe manner, they have to instruct the flight marshal who will command the pilot to land. In this case, the flight will be deemed complete.

#### **6.1.8. Marking**

##### **6.1.8.1. Judges**

All flights shall be judged by a panel of at least 3, and preferably 5, judges. The scores of all judges shall be taken into account.

The score given by each judge for each competitor shall be made public immediately at the end of each flight.

##### **6.1.8.2. Qualification and Finals flights**

Each flight may be awarded marks, in half point increments by each of the judges and for each judging criterion. Judging shall be done on:

- Technique (difficulty and precision of the individual manoeuvres) ;
- Artistic quality (originality, harmony & rhythm, composition and versatility of the entire flight sequence, adhesion to the music) ;
- Overall appearance (use of the flight space, positioning of the manoeuvres and general impression).

Each judge may award a maximum of 30 points to each competitor. A judging guide shall define the judging criteria and their relative weights.

#### **6.1.9. Classification**

- 6.1.9.1. The score of a qualification or final round is the sum of the flight scores of that round.
- 6.1.9.2. The flight starting order at the beginning of any round after the first qualification round is in reverse order of the classification at the end of the preceding round.
- 6.1.9.3. The final classification is established according to the last round flown by the competitor and the classification in this round, in decreasing order from Final to initial Rounds and from highest score to the lowest.

- 6.1.9.4. In case of a tie, the ranking of the preceding round will prevail. If the tie remains, the sum of the scores of the last and preceding rounds will decide.
- 6.1.9.5. Provided this is specified in the competition announcement, the Organiser may elect to organise Airplane, Helicopter and Jet Artistic Aerobatics as a single competition with only one aircraft type or any combination of them with a common classification.

6.1.10. **Tasks**

**6.1.10.1. Music compulsory flights**

These are flights where each competitor must compose his own sequence of manoeuvres to suit a compulsory music. Any manoeuvre may be flown, provided safety is ensured. Unsafe flying, in the opinion of the judges, shall result in a zero score.

The flights shall be judged for technique (precision and difficulty of the individual manoeuvres), artistic quality (composition of the complete sequence, variety of the manoeuvres, rhythm and adherence to the music) and overall appearance as detailed in 6.1.8.2.. Excessive noise detracts from the overall appearance and shall accordingly induce downgrading.

The music to be used may be chosen and prepared by the ad hoc sub-committee or the Organiser and must be available to the competitors three months in advance at the latest.

For finals, the duration of the compulsory music shall be between 100 and 140 seconds.

**6.1.10.2. Music free-style flights**

These are flights where each competitor must compose his own sequence of manoeuvres to suit a music of his own choice. Any manoeuvre can be flown, provided safety is ensured. Unsafe flying, in the opinion of the judges, shall result in a zero score.

The flights shall be judged for technique, artistic quality and overall appearance as detailed in 6.1.8.2.. Excessive noise detracts from the overall appearance and shall accordingly induce downgrading. A judging guide may define the judging criteria and their relative weights.

The music shall be chosen by each competitor according to his own taste. The music shall be composed of alternating slow and faster tempo segments so as to enable the competitor to display the widest possible range of manoeuvres and mood impressions. The competitor must provide the Organiser with a record of the chosen music on CD, tape or any other suitable support specified by the Organiser in the original invitation document. Details of the music used (composer, interpreter, CD label, etc.) shall be supplied to the Organiser for Public Performance Rights collection purpose.

For qualification flights, the music shall be of 120 seconds duration. When several qualification rounds are scheduled, the competitor may elect flying a different music and/or manoeuvre sequence for any one of such flights.

When the finals is limited to 2 or 3 competitors, the Organiser may elect to run the previous round ( "semi-finals" ) with 240 seconds music pieces. The number of competitors entered in such semi-finals shall not exceed 5.

For finals, the music shall be of 240 seconds duration.

Music duration variations up to plus or minus 5 (five) seconds are allowed. The scored part of the flight begins at the moment the music starts and ends at the moment the music comes to an end.

**6.1.11. Timing procedures**

6.1.11.1 It is the competitor's responsibility to check the timetable and make sure he is ready to start at the prescribed time. He may be handed out his transmitter at any time as

allowed by the Transmitter Impound Steward, but no later than the prescribed starting time of the previous competitor.

- 6.1.11.2 Once allowed to enter the flight area and with permission from the Field Marshall, the competitor or his helper may start his engine(s). The start of the take-off roll (the moment the aircraft moves under its own power) or lift-off shall occur no later than 60 seconds after the moment permission has been given to start the engine(s).
- 6.1.11.3 During Music Compulsory and Music Free-Style flights, the competitor may elect to start his scored sequence (start of the music) at any time from the moment of the start of the take off roll (or lift off) until 30 seconds after this moment. He must express his choice to the Judges and timekeeper before the beginning of his flight and signal to the Steward the moment he wants the music to start. If he fails to signal this moment, the Steward will start the music 30 seconds after the start of the take off roll (or lift off).
- 6.1.11.4 During Music Compulsory flights, scoring by the judges ceases, at the choice of the competitor, at landing or in flight. Whatever the choice, scoring stops at the moment the music stops.
- 6.1.11.5 During Music Free Style flights, scoring by the judges ceases at the moment the prescribed music duration comes to an end. At the choice of the competitor, this may occur at landing or in flight. Whatever the choice, scoring stops at the moment the music stops.
- 6.1.11.6 If the competitor elects ending his scored sequence while in flight, he must land his aircraft (the moment the aircraft first touches the ground on the designated landing area) within 30 seconds of the end of the scored sequence.

#### **6.1.12 Time penalties**

- 6.1.12.1. If the competitor fails to take off within the time allowed, the flight is scored 0 (zero).
- 6.1.12.2. If the competitor fails to begin the scored sequence within the time allowed, the flight is scored 0 (zero).
- 6.1.12.3. If the competitor fails to land within the time allowed after the end of the scored sequence, the flight is scored 0 (zero).
- 6.1.12.4. If the freestyle music lasts less or more than the prescribed duration, the flight score shall be reduced accordingly.

#### **6.1.13. Junior and National Team participation**

- 6.1.13.1 When at least 5 Junior competitors are competing, there shall be a separate Junior classification. Whenever possible, the Organiser should try organising separate flight groups for them.
  - 6.1.13.2. National Teams, when applicable, shall consist of up to eight (8) competitors from the same Nation.
- 6.1.13.3. A National Teams classification shall be established, taking into account the classification of the three (3) top ranking competitors from each Nation.
- 6.1.13.4. National Junior Teams, when applicable, shall consist of up to five (5) competitors from the same Nation.
- 6.1.13.5 A National Junior Teams classification shall be established, taking into account the classification of the three (3) top ranking Junior competitors from each Nation.