

# ***SAMJA SPORT JET SPORTING CODE***

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## Abbreviations

Name	Reference
Contest Director	CD
Federation Aéronautique Internationale	FAI
South African Model Jet Association	SAMJA
National Aero Club	NAC
N.O.	Not Observed
Radio Control	R/C
South African Model Aircraft Association	SAMAA

## Applicable Documents

- FAI Sporting Code, Section 4, (as amended)
- SAMJA constitution

## **1 Introduction**

- 1.1 The purpose of this sporting code is to guide competitors of sport jet aerobatic competitions in South Africa a give them a better understanding of what is required during competitions either from a competitor or organisers perspective.
- 1.2 Any accident involving model jet aircraft may result in property damage, injury and possibly even death. Apart from the direct harm, a less obvious result is the poor image of model flying that comes from the media coverage of such incidents that leads to public antagonism and the loss of flying facilities.
- 1.3 It is of the utmost importance that all jet model flyers observe safety rules. Any accident caused by carelessness is a hindrance to the progress of model aviation. Safety rules are not an obstacle to the enjoyment of model flying, they help to prove that model flyers are the responsible citizens they proclaim to be.
- 1.4 It is therefore very important not to fly any model jet aircraft in competition or in the presence of spectators until it has been proved airworthy.
- 1.5 Any member called upon to fly sport jet demonstrations at a public event must ensure that the event has been sanctioned by SAMJA and that he holds the required proficiency rating to fly at such events.
- 1.6 At all SAMJA sanctioned competition events each contestant must ensure that he/she has previously and is now capable of confidently performing the manoeuvres comprising this class. The contestant must similarly also ensure that any or all aircraft he/she uses in said competition have been test flown at least to the extent that they have performed the same competitive manoeuvres.
- 1.7 Pilots in the Sport Jet class, contest directors, jury members and judges are also referred to the following sections of the FAI Sporting Code:
  - FAI Statutes,
  - FAI Sporting Code, General Section and section 4
  - FAI Bylaws

- 1.8 The use of "shall" and "must" implies that the aspect concerned is mandatory. The use of "should" implies a non-mandatory recommendation; "may" implies what is permitted or what might happen, and "will" indicates what is going to happen. Words of masculine gender should be taken as including the feminine gender unless the context indicates otherwise. Italics are used for explanatory notes.
- 1.9 The SAMJA Management Committee reserves the right to amend this Sporting Code, in line with its Constitution, in order to ensure the proper management of all SAMJA management activities and competitions. Such amendments will come into effect on a date determined by the Management Committee.

## **2 Membership fees**

- 2.1 Current and any new members joining SAMJA will not be allowed to participate at any provincial or national event should their membership fees not be paid prior to their entry form being submitted. SAMAA has the discretions to wave this stipulation for any National Competition.
- 2.2 SAMJA membership fees are determined at the Annual General Meeting of the organization. Current members have to pay their membership fees by no later 31 January of each year. Any member not in good standing (non-paid up members of SAMJA and SAMAA) will not be allowed to participate in any SAMJA sanctioned sport jet competition.

## **3 Permissible radio equipment**

- 3.1 Radio equipment shall be of the open loop type (i.e. no electronic feedback from the model aircraft to the ground, except for the stipulations in the FAI volume ABR B.11.2). 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.
- 3.2 Example: Permitted:
  - a) Control rate devices that are manually switched by the pilot.
  - b) Any type of button or lever control that is initiated and terminated by the pilot.
  - c) Manually operated switches to couple control functions.
- 3.3 Example: Not permitted:
  - a) Snap buttons with automatic timing mode.
  - b) Pre-programming devices to automatically perform a series of commands.
  - c) Auto-pilots (gyro) for automatic levelling or pitch control of the model.
  - d) Any type of voice recognition system.
  - e) Any type of learning function involving manoeuvre to manoeuvre or flight to flight analysis.
  - f) Thrust vectoring.

#### **4 General characteristics of model flown in Sport Jet class**

- 4.1 A model aircraft, but not a helicopter, which uses turbine jet(s) or ducted fan(s) as the propulsion source(s) and which is aerodynamically manoeuvred by control surface(s) in attitude, direction, and altitude by a pilot on the ground using radio control. Variable thrust direction of the propulsion device(s) is not permitted. The propulsion device(s) must automatically shut-off, or fully idle at the moment a R/C signal failure should occur.
- 4.2 The R/C Aerobatic Jet Model Aircraft shall use as a propulsion device either
- a) turbo jet/s
  - b) ducted fan/s, ducted fans may use piston engines or electric motors as a power source.
  - c) The number of model aircraft eligible for entry is two (2).
  - c) For power device limitations, noise rule, and radio equipment see section
  - d) Noise limits apply to model aircraft with piston engines only.

#### **5 Contest organisation requirements**

- 5.1 In order to run a successful competition, certain requirements have to be met. Organisers of a sport jet aerobatic event must secure a sufficient number of qualified officials, timekeepers and jury members present at all times during the duration of the competition event. Organisers must establish a suitable contest area allowing the full performance of the model aircraft and safe recovery. The organizer must provide a smooth area for models to facilitate take-offs and landings.
- 5.2 The contest organizers should provide the necessary measuring apparatus adequate to check the characteristics of model aircraft.
- 5.3 The contest organizers must provide at least one practice day prior to the competition, to be announced in the entry form along with a flying schedule for the competition.
- 5.4 Organisers must display the results of each round throughout the contest and publish the official results afterwards.
- 5.5 Any aerobatic contest must take place between the hours of sunrise and sunset. The contest programme including round durations, and starting and finishing times of the contest must be clearly indicated in the regulations.
- 5.6 The contest must be interrupted, or the start delayed by the organizers, due to any of the following conditions, subject to any FAI rule changes on the matter:
- a) The wind is continuously stronger than 12 m/s measured at two metres above the ground at the starting line (flight line) for at least one minute (43,2 km/h or 23 knots).
  - b) The visibility prohibits proper observation or control of the models due to atmospheric conditions (low cloud base, mist, thunder and lightning) and it would be dangerous to continue the competition.
  - c) The prevailing conditions are such that they may lead to unacceptable sporting results, and
  - d) The sun is moving or has moved into the manoeuvring area.

- 5.7 The CD may also suspend flying when in his/her opinion, flying has become unsafe due to wind, field conditions or other circumstances. Similarly a contestant may ask the CD for a flight delay or re-flight due to unsafe conditions referred to above, and if the majority of the judges/jury members agree, the delay may be granted. A flight delay or re-flight shall not be granted for equipment malfunctions.
- 5.8 In the event of an interruption during a round, the remainder of the round may be completed as soon as conditions allow, with adequate notice given to all competitors. If not possible to complete the interrupted round on the same day, the round must be completed the next day in its entirety, should the program allow for that. Otherwise the round will be cancelled in order to ensure a fair sporting result.
- 5.9 Should a competition not be able to be started or completed as a result of any of the above cases described, and as a result has to be cancelled, the organisers are not obliged to return the entry fee nor repeat the contest. The results will be based on the scores of the finished rounds.

## **6 Model Processing**

- 6.1 Model processing may be done at Provincial and National events. It is the competitor's responsibility to ensure that his model complies with the prescribed regulations. The organizers must make the measuring equipment available to the competitors before the start of the event for them to check that their models comply with the specifications.
- 6.2 The organiser may appoint official(s), who will randomly check the important characteristics of competing models during National, Provincial and Team selection events. This is applicable to all classes.
- 6.3 When, after official processing a model is damaged or does not conform to the official requirements, the competitor shall have the right to present a further model / or alter the model to meet the required specifications. In any event, the competitor may have only the eligible number of models (two) entered at the start of the contest and must be ready when called upon for his official flight.
- 6.4 *Competitors may use another competitor's model if the majority of the competitors participating in the class agrees.*

## **7 Start of an official round and allowed assistance**

- 7.1 The competitors must be called by the flight line director at least five minutes before they are required to occupy the starting area (ready box).
- 7.2 Each pilot is permitted one helper during the flight. A helper may be a caller, another competitor or any supporter. Two helpers may be present and assist during the starting of the turbines / motor(s). One person, either a helper or the caller, may place the model aircraft for take-off and retrieve the model aircraft following the landing. In exceptional circumstances, another helper may join the competitor and caller/helper during the flight, but only to hold a sun-shield as protection from direct sunlight. These protection devices must not interfere with the judges' vision of the manoeuvres.

- 7.3 Except for communication between the caller and the competitor, no other performance-enhancing communication with helpers is permitted during the flight.
- 7.4 Pilots with physical impairments requiring an additional helper, caller or other assistance, must request permission with full details, with their entry form, from the organisers of a competition. The contest organisers may permit such assistance provided that:
- The pilot does not gain an unfair advantage over other competitors.
  - This assistance does not cause undue delays, disruptions or interfere with the running of the contest.
  - The pilot is responsible for arranging such assistance.
  - For hearing impaired competitors the additional caller must not interfere with the judges' vision of the manoeuvres and the additional caller may only call out the manoeuvre to assist the pilot's main caller. Under no circumstances will the additional caller be allowed to call any manoeuvre corrections during the flight.
- 7.5 There is an attempt to start an official round in all classes when the competitor is given permission to start.
- 7.6 The allowed starting time is six (6) minutes and the flying time five (5) minutes. The competitor must be informed when five (5) minutes of the starting time have elapsed. If the pilot has not yet completed his sequence, he/she should be instructed to land immediately.
- 7.7 If the model aircraft fails to start its *take-off run* (deliberate forward movement) within the 6 minutes allowed, the competitor *must be* instructed by the flight line director to immediately make room for the next competitor. If the motor/propulsion device fails after the take-off has begun, the attempt will be deemed complete and *no restart* will be allowed. The competitor must be instructed to immediately make room for the next competitor.
- 7.8 An attempt can be repeated at the contest director's discretion only when for any unforeseen reason outside the control of the competitor the model 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, the competitor is entitled to a re-fly starting with the manoeuvre preceding the interruption but only the manoeuvre affected and the un-scored manoeuvres that follow will be judged.
- 7.9 There is an official flight when an attempt is made whatever the result. This re flight should take place within 30 minutes, in front of the same set of judges, or be the first flight after the judges' break, or, if it involves a protest, as soon as the jury has deliberated and communicated the outcome of the protest to the contest director. The result of the re flight will be final.

## **8 Scoring of an official flight**

- 8.1 Each manoeuvre may be awarded marks by each of the judges during the flight. Every manoeuvre starts with the mark of 10 points and will be downgraded for each defect during the execution of the manoeuvre in one or multiple 0.5 point steps, depending on the severity of the defect. The remaining points result in the mark for the manoeuvre. During tabulation, these marks are multiplied by a coefficient (K-Factor) which relates to the difficulty of the manoeuvre.
- 8.2 Any manoeuvre not completed, or flown out of sequence with the stated schedule shall be scored zero (0). Zero scores need not be unanimous, except in cases where an entirely wrong manoeuvre was performed. Judges must confer after the flight in these cases, bringing it to the attention of the flight line director/contest director on site.
- 8.3 Take-off and landing procedures are not judged and are not scored.
- 8.4 Manoeuvres must be performed where they can be seen clearly by the judges. If a judge, for some reason outside the control of the competitor, is not able to follow the model aircraft through the entire manoeuvre, he may set the "Not Observed" (N.O.) mark. In this case, the judges' mark(s) for that particular manoeuvre will be the average of the numerical marks given by the other judges, rounded to the nearest whole number. If no such average is achievable, the competitor has the right for a re-flight as per 7.9
- 8.3 If a model aircraft is in the opinion of the judges unsafe or being flown in an unsafe or inappropriate manner, they may bring this to the attention of the flight line director, who may instruct the pilot to land.
- 8.4 Engines/motors may not be started, or the electric power source connected, until the competitor has been instructed by a flight line official to do so. Deliberate starts at the flight line during official flying to check the engine/motor, will be subject to disqualification from that round. Immediately after landing engines must be stopped and electric power sources disconnected. No public address or commentary should be made during flights.

## **9 The Manoeuvring area (box)**

- 9.1 It is imperative that all flying sites are registered with SAMAA, be situated sufficiently far from power lines and any other obstructions. The starting and flying area must be carefully chosen in such a way that adequate safety to persons and property is guaranteed. The points to be considered in this context are:
- wind strength and direction;
  - relative position of buildings;
  - runways;
  - vehicle parking and spectators areas; and
  - the area where the models are assumed to land after a normal flight, according to the wind.

- 9.2 A demarcated box will be clearly marked with contrasting colour vertical poles, approximately 100mm in diameter and a minimum height of 4 meters, placed on centre and 75 degrees each side of centre on a line 200m in front of the pilots. Flags and/or streamers of contrasting colour should be mounted on the poles to improve visibility.
- 9.3 White or contrasting lines, originating at the pilot's position and extending outward at least 15m (preferably 50m) will also be used to mark the centre and extreme limits (75 degrees left and right of centre) of the manoeuvring zone.
- 9.4 The judges shall be seated not more than 10 meters behind (minimum of 7 meters) the pilot's position. The judges must be seated abreast, usually separated by 2m with scribes or score secretaries separating them.
- 9.5 The manoeuvring zone is practically like a virtual screen, vertically spread in front of and at a distance of approximately 150 meters to 200 meters from the pilot. It is laterally limited by two virtual vertical planes above the extension of two lines on the ground each at an angle of 75 degrees left and right from the intersection of a centre with the security line. The centre line is positioned on the ground perpendicular to the security line on the ground being parallel to the flight line. The pilot is placed at the intersection of all ground lines.
- 9.6 Centre manoeuvres should be performed in the centre of the manoeuvring zone, while turn around manoeuvres should not extend past the lateral limits. Vertical height should not exceed the upper limit (75 degrees). A
- 9.7 The landing zone **must** be a smooth surface with minimum criteria of 5 meters wide by 200 meters long and must have a smooth run-off area of at least two meters on each side, and ten meters at both ends of the runway. The landing zone must be clearly marked in cases where the landing zone is not a clearly defined runway.
- 9.8 A grass runway must be of the same grass type with no exposed roots (tuffs) that could cause a landing gear or wheel spat from being imbedded or cause the aircraft to be damaged or be deviated from its track during take off or landing due to the surface. Grass must at all times be cut short.
- 9.9 The organisers of a competition must ensure that competitors can deliver his/her best performance without manageable influences/obstacles.

## **10 The draw for flight order**

- 10.1 The draw for the flight order will be done for each flight line, so that pilots using the same FM frequencies are separated with two competitors. Where possible, pilots and their callers should not follow one another and pilots and callers on separate flight lines will be separated by at least two competitors. These arrangements to be finalized by the contest director. The Organisers should where possible have competitors indicate on their entry forms who their respective callers are going to be.

- 10.2 The flight order for the first round will be established by a random draw for Provincial and National events. The draw will be done by the pilots at the pilots briefing before the start of the contest. Should a pilot not be present at the pilots briefing, the Chief Judge or the Contest Directors will draw on his/her behalf. For flights two and three the flight order will start 1/2 and 3/4 down the flight order respectively with decimal fractions **rounded up**. The same pilot may not start two rounds (unless there are less than 3 pilots in the class.).The table below shows an illustration of the draw for each round for various class sizes.

**Table 1 Flight Draw Order**

Number Pilots in Class	3	4	5	6	7	8	9	10	12	13	14	15	16	17	18	19	20
Pilot # Starting Round 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pilot # Starting Round 2	2	3	3	3	4	5	5	4	4	5	5	5	5	6	6	6	6
Pilot # Starting Round 3	3	4	5	6	7	8	9	7	7	8	8	9	9	10	10	11	11

- 10.3 Warm-up flight(s) (if requested) to be flown by the last competitor(s) drawn for the specific round.

## **11 Execution of manoeuvres**

- 11.1 The manoeuvres must be executed during an uninterrupted flight in the order in which they are listed. The competitor may make only one attempt at each manoeuvre during the flight. The competitor has six (6) minutes to start the engine/motor and for the model aircraft to commence its take-off roll. The competitor has five (5) eight minutes to complete the flight, starting with the instruction to start the motor and ending after completion of the last manoeuvre of the schedule. Scoring will cease with the expiration of the five (5) minute time limit.
- 11.2 The model jet aircraft must take-off and land unassisted, that is, no hand launched flights or the aircraft restrained during take-off. If any part of the model aircraft is dropped during the flight, scoring will cease at that point and the model aircraft must be landed immediately.

## **12 Schedule of manoeuvres**

- 12.1 The schedules for the sport jet class will be those as published for the specific years by SAMJA. The applicable aerobatic schedules descriptions, ARESTI diagrams and score sheets can be found on the SAMJA website.

### **13 Classification at Provincial and National events**

- 13.1 For the Sport Jet class each competitor will fly three flights, of which the best two normalized flight scores will be used to determine the final placing.
- 13.2 Should organisers not be able to have three rounds completed during a contest, the following criteria will be applied.
- 3 rounds completed - best 2 scores to count
  - 2 rounds completed - best score to count
  - 1 round completed - completed round to count

### **14 Penalties and Disqualification**

- 14.1 The CD of a sporting event may penalise a competitor and these penalties may be in the form of operational disadvantage, deduction of points, alteration of placing order or disqualification.
- 14.2 Technical infringements of rules or a failure to comply with the requirements caused by mistake or inadvertence, where no advantage has accrued or could have accrued to the competitor should, as a guide, carry a penalty to a reduction of not less than 2% of the best score obtained during the event.
- 14.3 Serious infringements, such as dangerous flying and actions, or repetition of lesser infringements should, as a guide carry a minimum penalty leading to a reduction of not less than 5% of the best score obtained during the event.
- 14.4 Cheating or unsporting behaviour (which includes continuous derogatory comments by fliers against judges and officials), falsification of documents, use of forbidden equipment should be investigated by the jury and carries a sanction of immediate disqualification from the event.
- 14.5 A competitor who has been disqualified shall not be able to claim back any part of his entry fee and will not be eligible for any prizes awarded during the event.

### **15 Protests**

- 15.1 All protests must be presented in writing to the CD at the competition and must be accompanied by a protest fee. The protest fee will be an amount equal to ½ the entry fee for the relevant competition.
- 15.2 The deposit is returned only if the protest is upheld. The protest must be handed to the Contest Director and adjudicated by the official jury formed by the organisers prior to the start of the event. A Jury President must be appointed by the contest organizers.
- 15.3 A protest against the validity of an entry, qualification of competitors, the contest rules, the flying and contest area, the processing of models, the judges or other contest officials, **must** be lodged at least one hour before the opening of the contest, normally the official pilots briefing, or within one (1) hour after it has come to the attention of the protestor.

- 15.4 During the running of the contest a protest against a decision of the judges or other contest officials or against an error or irregularity apparently committed during an event by another competitor or CD must be lodged within one hour from the incident, or within one hour of coming to the pilots attention.
- 15.5 After announcement of the results, any protest relating to the results must be submitted to SAMJA within 15 days after announcement of the results. If necessary this protest may be passed to SAMAA
- 15.6 The Jury shall after deliberations notify the pilot immediately of the outcome of his protest and quote the reasons for the ruling or disqualification.
- 15.7 Should the jury be called upon to adjudicate any matter not dealt with in the sporting code or FAI rules, they should use their discretion in coming to an amicable solution. The finding of a jury in such an instance will not be binding on the jury of any future competitions.
- 15.8 A complaint may also be filed, the purpose being that a correction can be obtained without the need to make a formal protest.