

Large Scale Aerobatics Sporting Code



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1. Objective

Inspired by full-scale aerobatics, Large Scale Aerobatics South Africa, herein referred to as (LSA) strives to fly scale or semi-scale aerobatic model aircraft in a competitive and realistic manner that is challenging for the contestants as well as interesting for spectators.

The purpose of this sporting code is to guide competitors and officials of Large Scale Aircraft aerobatic competitions in South Africa, to a better understanding of what is required during competitions.

It is of the utmost importance that all 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.

The LSA Committee reserves the right to amend this Sporting Code, in line with its Constitution, in order to ensure the proper management of all LSA activities and competitions. Such amendments will come into effect on a date determined by the LSA Committee. For all LSA classes, should there be any contradiction between this Sporting Code and the IMAC rule book the rule book will take precedence.

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.

2. Membership Fees

Membership fees are determined at the LSA Annual General Meeting held during the SAMAA SA Combined Power Nationals each year which will be due by no later than the 31 January the following year. Current members must pay their membership fees by no later than 31 January of each year. Any member not in good standing (non-paid up member of LSA and SAMAA) will not be allowed to participate in any LSA/SAMAA sanctioned competition. Where a league event is held before the 31st January the membership fees shall be paid prior to the event being held.

3. Permissible Radio Equipment

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 IMAC RULES). Auto-pilot control utilizing inertia, gravity or any type of terrestrial reference is prohibited. Automatic control sequencing (pre-programming) or automatic control timing devices are prohibited.

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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-pilots (gyro) for automatic levelling or pitch control of the model.
- 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.

4. General

All SACAA, ICASA and SAMAA regulations covering the RC flier, airplane and equipment, shall be applicable. For the purposes of contest judging the AMA Scale Aerobatics Official Flying and Judging Guide shall be used for IMAC based classes and the FAI F3M Sporting Code for FAI F3M based classes, with the exception of the variations from these rules as specified in this document.

Consideration of safety for spectators, contest personnel, and other contestants is of the utmost importance. Any unsportsmanlike conduct or hazardous flying over a controlled spectator area will be cause for immediate disqualification of that flight. Further infractions will result in the removal of that pilot from the contest.

5. Aerobic League Rules

The LSA aerobatic league event is open to all pilots in the classes from Basic to Unlimited. It is recommended that all competitors/LSA pilots become paid up members of LSA and mandatory members of SAMAA in order to qualify for the League Events. The league is a series of aerobatic competitions in every province culminating in the South African LSA TOC.

The league contests will be flown between January and a date of at least one month before the TOC of each year, with the dates determined by the regional representatives. Permission for league competitions to fall outside these specified periods must be obtained from the LSA Committee. These dates must be communicated to LSA before the season commences. In the case of the competitions being rained out or cancelled due to adverse weather conditions, the organizers may re-schedule the event for a later date.

The aerobatic league per province shall consist of four (4) league contests (or more, at the discretion of the regional representatives) throughout the flying season. There shall be no

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more than one league competition per month. All provinces will be allowed one provincial contest per year and provincial contests are classified as one of the provinces league events. Pilots are allowed to fly any league contests in any province and use the scores so obtained for purposes of qualification to the TOC.

All Team selection, League and National events will be flown in terms of LSA / SAMAA rules and regulations. Every league competition will, where possible, consist of two (2) flights, with the best three normalized scores to count. The regional representative must also publish the scores in percentages for inclusion in the national LSA pilots register

The full results (percentage scores) of every league competition must be forwarded to the LSA secretary and Chief Judge on the LSA approved scoring templates no later than 7 days after completion of the event for ratification and publication. Failure to forward scores will result in non-recognition of the event.

6. Contest Organization Requirements

In order to run a successful competition, certain requirements have to be met. Organizers of an aerobatic event must secure a sufficient number of qualified officials, time keepers and jury members. Jury members must be present at all times during the duration of the competition event. Organizers 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.

Entry details (entry form) indicating full details of the event and classes should be published at least 30 days prior to the contest for all National and Provincial events. A Provincial contests will only be awarded official status if the following minimum requirements are met:

The date of the contest must not clash with any other similar event and must be published at least 30 days prior to the contest.

- The entry fee must be approved by LSA and published with the entry form.
- The names of the Judges must be submitted and approved by LSA at least a week prior to the start of the event.
- The venue of the contest must be of an acceptable standard having regard to runways (smooth conditions), flight lines (position of sun), shelters from adverse weather conditions and sanitation facilities.
- The contest must be run in accordance with the current LSA sporting code and FAI rules and any protest ruled accordingly.
- Competitors must be paid up members of SAMAA.
- An entry will only be considered a valid entry on receipt of the full entry fee by the organizers.

At all LSA sanctioned events each contestant shall sign as part of the entry form a declaration attesting to the fact the he/she has previously and is now capable of confidently performing the manoeuvre comprising his class. The contestant must similarly

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also declare 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 manoeuvre.

The contestant must similarly also declare that he is a paid up member of SAMAA and LSA and will abide by the rules of these organizations.

For all Team Selection, Provincial and National events, 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. Organizers need not regulate the practice day and will normally function on a first come first serve basis. Should demo flight be flown for judges on the practice day a second flight line or practice facility must be made available for use by the competitors. The practice day must not be extended so as to delay the start of official competition. A reserve day may be scheduled in the planning of the competition to allow for the completion of official flying in the event of weather or other delays preventing completion as scheduled.

Organizers must display the results of each round throughout the contest and publish the official results afterwards.

The contest must be interrupted, or the start delayed by the organizers, due to any of the following conditions, subject to any IMAC rule changes on the matter:

- The visibility prohibits proper observation or control of the models due to atmospheric conditions (low cloud base, mist, rain, thunder and lightning) and it would be dangerous to continue the competition.
- It is necessary to reposition the flight line (this may only take place between rounds).
- The prevailing conditions are such that they may lead to unacceptable sporting results, and
- The sun is moving or has moved into the manoeuvring area.

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 jury members agree, the delay may be granted. A flight delay or re-flight shall not be granted for equipment malfunctions.

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.

In the case of a mid-air collision between two contestants, the contestants must immediately recover their aircraft and they may resume their flights with the same aircraft if the aircraft are judged to be airworthy by the CD, or with a backup or repaired aircraft. On the re-flight judging will begin with the manoeuvre that was in progress or with the next scheduled manoeuvre if the collision occurred between manoeuvres:

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5.14 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 organizers are not obliged to return the entry fee nor repeat the contest. The results will be based on the scores of the finished rounds.

7. Open Events

The events accommodate aerobatic monoplanes and biplanes which are replicas of types known to have competed in International Aerobatic Club (IAC) competition, or replicas of types known to be capable of aerobatic competition within the airspace known as the "Box."

All classes except Basic require that the pilot must meet the requirements defined in Rule 3.1. The Basic Class is open to all competitors with any model aircraft capable of performing the required manoeuvres.

Contest Directors may make an exception for a model of a full scale aircraft that was built for IAC competition, but has not yet competed. Proof of the latter is the responsibility of the contestant.

Minimum aircraft size requirements for each class:

Class	Min Engine Displacement	Min WingSpan Monoplane	Min Wing Span Biplane	Min WingArea
Basic	No restriction	No restriction	No restriction	No restriction
Sportsman	30cc petrol or equivalent	70" or 1800mm	59" or 1500mm	960 sq in or 62 sqdm
Intermediate and Upward	50cc petrol or equivalent	82" or 2100mm	70" or 1800mm	1200 sqin or 77.5 sqdm

The known sequences will be developed, annually, by the IMAC Sequence Committee, in accordance with the current FAI "ARESTI Aerobatic Catalogue." The IMAC Board of Directors must approve all known sequences for use in IMAC competition. F3M schedules are developed bi-annually by the FAI CIAM sub-committee for RC Aerobatics.

The unknown sequences will be drawn from the catalogue of Legal Unknown Figures for each class. The catalogue of legal Unknown Figures is located on the ARESTI website.

Difficulty of "K" factors for known and unknown sequences will be derived from the current FAI "ARESTI Aerobatic Catalogue."

8. Model Aircraft Specifications

Only one (1) propeller per aircraft shall be allowed. Internal combustion reciprocating engines and electric motors shall be allowed. If the aircraft is utilizing an internal

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combustion engine, only one (1) engine shall be allowed. If the aircraft is utilizing electric motors, more than one (1) electric motor may be used.

The model shall comply with all SAMAA Safety Codes as specified in SAMAA MOP PR03

There shall be no airborne devices fitted to the aircraft which place the aircraft under less than total control by the pilot. These devices will include, but are not limited to, gyros, automatic pilots, electronic stabilization, and timing devices

Non-airborne aids such as transmitter based functions (snap roll button etc) are permissible.

Pilots found to be using prohibited devices will be disqualified from the contest.

9. Scale Aerobatic Sound Limits

The model shall comply with all SAMAA, IMAC and SACAA noise limits as specified in SAMAA MOP.

In-Flight Judging Criteria, Known and Unknown Sequences.

Judges will evaluate each individual sequence flown in its entirety for overall sound presentation. Each judged Known and Unknown sequence, shall have one "figure" added to the end of the score sheet after individually judged manoeuvres. This figure shall be known as the Sound Score. The Sound Score will have a K value dependent on the class flown.

Individual class K values are:

- Unlimited 15 K
- Advanced 12K
- Intermediate 9K
- Sportsman 6K
- Basic 3K

The sound presentation will be scored on a scale of 10 to 0 with 10 denoting "Very Quiet," and 0 denoting "Very noisy." Whole points will be used for scoring. This sound score will then be multiplied by the K value for the individual class and included in the total flight score for the sequence. Note that each judge's score is independent of the other(s) and no conferencing on the sound score is required. If a pilot receives a sound score of three (3) or less for the same sequence from two or more judges, the pilot will be notified of the problem and will be requested by the Contest Director to adjust or modify the aircraft in order to reduce the sound level prior to the next round. If that pilot, after notification, again receives a sound score of three (3) or less for the same sequence from two or more judges, that pilot will be disqualified from further competition at that contest.

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10. Proof of Scale

To prove that the model resembles a particular aircraft, some proof of scale is required.

Proof of scale is the responsibility of the contestant.

The general outlines of the model shall approximate the full size outlines of the subject aircraft. Exact scale is not required. The model shall be judged for likeness at a distance of approximately 10 feet/3 meters.

If the contestant presents no proof of scale material with the model, and the CD can determine that the aircraft is a replica of a full-size aircraft, then the contestant will be allowed to have his/her entry considered.

Scale shall be determined by the wingspan. A change in wingspan will become a change in overall Scale. Fuselage width, height and aircraft platform or any other variations shall not exceed 10% of scale, with the exception of aerofoils and size/shape of control surface within the scale outline rule.

A realistic three-dimensional human pilot and viewable instrument panel shall be appropriately installed in all Scale Aerobatic aircraft. A one [1%] flight score penalty will be assessed for non-compliance.

11. Material and Workmanship

Workmanship must be of satisfactory standards. The Contest Directors are empowered to refuse permission to fly, or to disqualify any aircraft which, in their opinion, is not up to reasonably safe standards in materials, workmanship, or radio installation.

12. Competition Classes

The event shall be divided into five (5) classes, in order of increasing difficulty. The classes are Basic (411), Sportsman (412), Intermediate (415), Advanced (413), and Unlimited (414). An optional F3M class may also be flown. The Basic class will not be flown at national events.

An Optional Four (4) Minute Freestyle may also be offered. A pilot must compete in one of the above classes to be eligible for the freestyle event.

Contest Directors and/or the sponsors of a sanctioned meet shall determine which of the classes and events will be flown. Such information must accompany all advance notices pertaining to the contest, including any planned deviation from standard rules, at least 14 days prior to the date of the contest.

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13. The Manoeuvring area

It is imperative that all LSA Competition flying sites are registered with SAAMA or have SAAMA approval for the duration of the competition. The starting and flying area must not affect the safety to property and persons. The landing and take-off zone must be of a smooth surface with smooth run off areas, as not to damage any LSA model aircraft. The zone/area must be of a suitable length for the safe operation of LSA model aircraft.

14. The draw for flight order

The draw for the flight order will be done so that pilots using the same callers 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 Organizers should where possible have competitors indicate on their entry forms who their respective callers are going to be.

The flight order for the first round will be established by a random draw for Team selection, league 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 a four flight competition, for flights two, three and four, the flight order will start $1/4$, $1/2$, $3/4$ down the flight order respectively with decimal fractions rounded up. For a three flight competition, for flights two and three the flight order will start $1/3$ and $2/3$ down the flight order with the decimal fractions rounded up.

15. Classification, Promotion and Relegation

Promotion and Relegation procedures

Any pilot may start competitive aerobatics in the class of his/her choice. It is however advisable for the beginner or newcomer to start flying in the Basic or Sportsmans classes if wanting to compete in a National competition.

Should a pilot achieve 67,5% or more at the National competition or obtain 67,5% or more as an average percentage for his/her highest three Regional Competitions in a given year, the pilot will be promoted to the next higher class by the LSA committee at the start of the next flying season.

Should any pilot fail to achieve an average percentage score of 40% in 3 consecutive LSA recognized Provincial or National championships in a given year, or should a pilot voluntarily want to be relegated to the next lower class, he/she must submit a request in writing to the LSA committee for consideration. The reason(s) for the request must also be included as part of the motivation for relegation. Once the committee has reviewed the request and considered the pilots previous years scores achieved in national, provincial and league competitions, the pilot will be informed of the committee's decision via the regional representative.

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If a pilot is able to prove inactivity of 2 calendar years or more from LSA aerobatics, or similar competitive flying, and wishes to again start flying competitive aerobatics, he/she may send a written justification to the LSA Committee requesting that he/ she be allowed to start at the next lower class than the one that he had retired from. Once the committee has reviewed the request the pilot will be informed of the committee's decision via the regional representative.

16. Official Flights

Official flight for known program.

An official flight (round) for the Known program is defined as two (2) sequences. When time constraints prevent two (2) sequences from being flown, a round may consist of one (1) Sequence. Contestants shall have one attempt per sequence to complete the sequence. An attempt begins when the pilot or caller makes a vocal declaration such as "In the box", "Entering", or any similar statement indicating when the pilot is starting the sequence. A vocal signal is mandatory to initiate the attempt. If a vocal declaration is not made, the sequence can and will be zeroed, the sequence that is flown for which no vocal signal was made. Once the attempt is made by means of the vocal declaration, judging will begin as soon as the aircraft departs from the wings-level horizontal entry line and enters the first manoeuvre of the sequence. The horizontal entry line to the first manoeuvre of a sequence is not judged.

If a Known sequence in progress is determined by the judges to have been interrupted by a circumstance beyond the control of the contestant, the contestant may resume the sequence with the manoeuvre in progress at the time of the interruption. This manoeuvre will be scored. Note that a mid-air collision is considered to be "beyond the control of the contestant." If a mid-air occurs, each pilot, if still flying, must land and pass a safety inspection by the CD before continuing with that aircraft. The pilot also has the option of continuing with a different plane. After the mid-air, each pilot involved will declare his/her intention to complete the round or not. If the contestant chooses to continue, they will be positioned last in the round and be subject to whatever time constraints may be in force at the contest. In this case, no penalty will be imposed for repositioning to the end of the round rotation. When the contestant is again airborne they will resume the round with the figure prior to that in which the interruption occurred. This figure will not be judged. Judging will resume after the completion of said prior figure. If the contestant chooses not to continue the round, they will receive zeros for all manoeuvres not yet scored at the time of the mid-air.

If a Known sequence in progress cannot be completed due to mechanical problems with the aircraft (including but not limited to engine failure, radio malfunction, etc...) the contestant will receive zeros for each un-scored manoeuvre in that sequence. If the second sequence is yet to be flown and the aircraft cannot be made ready to safely fly, the contestant may attempt the second sequence with an alternate IMAC legal airplane (as defined in sections 4, 6, and 7 above). In such cases, the contestant will be positioned last in the round and be subject to whatever time constraints may be in force at the contest. When the contestant is again airborne they will fly the second sequence. In this case, no penalty will be imposed for repositioning to the end of the round rotation.

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An official flight (round) is two (2) sequences and the contestant is expected to be able to fly both sequences without refuelling between sequences. If the second sequence cannot be completed the contestants will receive zero (0) for each un-scored manoeuvre in that sequence.

17. Official Flight for Unknown Program.

An official flight (round) for the unknown program is defined as one (1) sequence. Contestants shall have one attempt to complete the sequence. An attempt begins when the pilot or caller makes a vocal declaration such as "In the box", "Entering", or any similar statement indicating when the pilot is starting the sequence. A vocal signal is mandatory to initiate the attempt. If a vocal declaration is not made the pilot will zero the sequence that is flown for which no vocal signal was made.

Once the attempt is made by means of the vocal declaration, judging will begin as soon as the aircraft departs from the wings- level horizontal entry line and enters the first manoeuvre of the sequence. The horizontal entry line to the first manoeuvre of a sequence is not judged.

If an Unknown sequence in progress is determined by the judges to have been interrupted by a circumstance beyond the control of the contestant, the contestant may resume the sequence with the figure prior to the interruption. This figure will not be judged. Judging will resume after completion of said prior figure. Note that a mid- air collision is considered to be "beyond the control of the contestant". If a mid-air occurs, each pilot, if still flying, must land and pass a safety inspection by the CD before continuing. The pilot has the option of continuing with a different plane that is an IMAC legal airplane as described above in sections, 4, 6 & 7.

After the mid-air, each pilot involved will declare his/her intention to complete the round or not. If the contestant chooses to continue, they will be positioned last in the round and be subject to whatever time constraints are being enforced at the contest. In this case, no penalty will be imposed for repositioning to the end of the round rotation. When the contestant is again airborne they will resume the round with the figure prior to that in which the interruption occurred. This figure will not be judged. Judging will resume after the completion of said prior figure. If the contestant chooses not to continue the round, they will receive zeros for all manoeuvres not yet scored at the time of the mid-air.

If an unknown sequence in progress cannot be completed due to mechanical problems with the aircraft (including but not limited to, engine failure, low fuel, radio malfunctions, etc.), the contestant will receive zeros (0) for each un-scored manoeuvre in that sequence.

18. Pilot Control of The Aircraft.

Once the pilot announces an attempt until the pilot completes the sequence, (known, unknown, or freestyle) only the pilot may operate the transmitter which is controlling the aircraft. Any assistance of any kind provided by another person to operate the transmitter (e.g., changing switches, programming modes, etc.) will result in the pilot receiving a zero for the sequence or Freestyle in progress when the assistance was provided. This rule

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applies only from entering the sequence until the sequence is complete. This rule does not apply to take-off, landing, or flight between sequences.

19. Number of Flights

There shall be no limit on the number of flights (other than that imposed by time available).

20. Aerobatic Airspace.

Refer to the AMA Scale Aerobatics Official Flying and Judging Guide Paragraph 4 or FAI F3M SC as relevant.

21. Time Limits.

The contestant has two (2) minutes to start his/her engine and become airborne. If after two (2) minutes the contestant is unable to start the engine, they will move to the end of the round rotation. If the contestant fails to start a second time, they shall receive zero for the round.

The contestant has one (1) minute from the time the wheels leave the ground during take-off to enter the aerobatic airspace.

There shall be no time limit while in the aerobatic airspace.

The contestant has two (2) minutes between leaving the aerobatic airspace and touchdown for landing, unless required to hold upon command from the appropriate official.

22. Positioning Manoeuvres

Prior to entering the aerobatic airspace, between sequences, and prior to landing, pilots shall only be allowed to perform the following trim and positioning manoeuvres:

- Turns
- Half Cuban with only a single 1/2 roll on the 45 down line, and Reverse Half Cuban with only a single 1/2 roll on the 45 up line:
- The 1/2 roll is optional based on aircraft positioning required to enter the aerobatic airspace:
- Half loops up or down (Immelmann or Split S) with only one half roll on entry or exit;
- Single half roll to inverted immediately prior to entering the aerobatic airspace for the case in which an inverted entry to the first manoeuvre is required;
- Single half roll to upright immediately after exiting the aerobatic airspace for the case in which an inverted exit from the last manoeuvre is required;
- A vertical up or down line with a simple push/pull for entry and exit. A single 1/2 roll is allowed on this vertical line only if required to orient the aircraft properly for entry to the first manoeuvre.

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Exceptions to this limitation may only be directed by the CD or line boss in the normal course of safely managing the airspace. Pilots will follow such directions and no penalty will apply.

Turnaround manoeuvres may not be performed at low altitude or directly in front of the judges. No other aerobatic manoeuvres are allowed immediately following the airplane breaking ground. An illegal manoeuvre performed before entering a sequence will result in zeroing the following sequence. An illegal manoeuvre prior to landing will result in zeroing the preceding sequence, except for the Four Minute Freestyle.

The intent here is to prevent anything that may be viewed as “practice” and hence give one competitor an advantage over another. Therefore, snaps, spins, point rolls, humpty’s, Tailslides, etc, may never be executed after breaking ground and before entering the sequence, between sequences or after completing the sequence(s) and prior to landing.

23. Execution of Manoeuvres

Scoring will cease with the end of each sequence. In all classes the model aircraft must take-off and land unassisted, that is, no hand launched flights. 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.

24. Schedule of Manoeuvres

The schedules for all five classes will be those as published for the specific years by IMAC. The applicable aerobatic schedules descriptions, ARESTI diagrams and score sheets can be found on the following LSA website:

<https://www.largescaleaerobatics.co.za/index.php/downloads>

25. Scoring of an Official Flight

Each manoeuvre is awarded a mark, in half number (0.5) increments, between 10 and 0 by each of the judges during the flight. During tabulation, these marks are multiplied by a coefficient (K-factor), which depends on the difficulty of the manoeuvre. Any manoeuvre not completed, or flown out of sequence with the stated schedule shall be scored zero (0). Zero scores need not be unanimous. Judges may not confer after the flight in these cases.

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 judge’s mark for that particular manoeuvre will be the average of the numerical marks given by the other judges, rounded up to two decimal places. If no such average is achievable, the competitor has the right for a re-flight.

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/CD, who may instruct the pilot to land.

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At the conclusion of all flights, each judge must independently consider if the in-flight sound level of the model aircraft is too loud. If a majority of the judges consider the in-flight sound level of the model aircraft too loud, the flight score will be penalized by 10 points for each judge on that panel during the flight.

If, during a flight, the sound level of the model aircraft increases perceptibly as a result of an equipment malfunction, or of a condition initiated by the competitor. If an equipment malfunction during the flight (like mechanical failure of the exhaust/muffler system) causes excessive noise, the flight line director/CD may request the competitor to land his model aircraft, and scoring will cease from the point of malfunction. The individual manoeuvre scores given by each judge for each competitor must be made public at the end of each round of competition.

The Engine/motor may not be started, 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 shall be made during flights.

26. Determining Placement.

Sequence scoring.

Scoring

The Official IMAC Scale Aerobatics Contest Guide or FAI F3M SC as relevant, shall be used to determine the number of sequences to be scored (drop schedule) and the weight of the unknown(s) based on contest category (2 day, multi-day, regional, etc.). Refer to Appendix A of the Official IMAC Scale Aerobatics Contest Guide for the drop schedule for known and unknown sequence flights.

Unknowns.

Each unknown sequence shall be flown once. The Official IMAC Contest Guide or FAI F3M SC as relevant, shall be used to determine how the known scores and unknown scores are combined based on contest category.

Combined Scores.

The highest combined scores will determine the winner.

Normalization

All sequences will be normalized to 1,000 as outlined in Rule 29. In the case of ties, the best non-scored sequence of the contestant shall be used to determine the winner.

The same set of judges shall judge each round. Judges may be rotated between rounds.

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Each sequence shall be normalized to a standard 1,000 points. The pilot with the highest raw score receives 1,000 points for the sequence. Each pilot thereafter shall have their raw score divided by the high raw score giving a percentage of that high raw score, which is then multiplied by 1,000 to get the normalized score. Scores shall be rounded to two (2) places of decimal accuracy. For example: Contestant A wins the sequence with a raw score of 4,850 points. Contest B is second with 4,766.5 points. Contestant A receives 1,000 points for the sequence. Contestant B's score is 982.78 points ($4,766.5 \div 4,850 = 0.982783 \times 1,000$ for 982.783, which rounded to two (2) places of decimal accuracy for a final score of 982.78).

27. Flight Pattern.

A contest shall include one (1) or more rounds of Known sequences and may include one (1) or more Unknown sequences. Any given unknown sequence can only be flown once per contest.

Compulsory Known Manoeuvre Sequences are defined by the ARESTI Catalogue.

Optional Unknown Manoeuvre Sequences shall include separate Sportsman, Intermediate, Advanced, and Unlimited sequences, each consisting of up to 15 manoeuvres.

- Unknowns shall be distributed the day of the contest or the night before to allow pilots to mentally fly and visualize them. If a contestant is found to have practised the Unknowns with a flying model or on a computerized flight simulator, that contestant will be disqualified from the entire contest.
- Flight order for the Unknowns should be established by random drawing.

The contestant must fly his entire flight according to the established flight schedule for his particular class and in the sequence listed. Manoeuvres that are executed out of sequence, or not executed as required by the sequence, will be zeroed. Remaining manoeuvres that are flown in their appropriate area and in the appropriate order following the zeroed manoeuvre will be scored.

Take-off and landing are not to be considered judged manoeuvres. It is not necessary for the judges to see the aircraft take off or land. The aircraft may be carried to the take-off point, and carried from the landing area, if so desired.

The CD can make a call to ground all airplanes and stop the competition if the wind reaches gusts of up to and over 37.5Kmph. It is in the best interest of the CD to ensure all pilots, judges, officials and spectators as well as equipment and airplanes are kept as safe as possible from potential damage from high or gusty winds.

28. Four (4) Minute Freestyle Program.

The Four (4) Minute Freestyle Program is a "Show Time" separate event. It is an unrestricted, individually created sequence in which "Anything Safe Goes!" To be eligible to participate and compete in this event, the competitor must also compete in one of the five IMAC or F3M categories of precision sequence flying at the same event. It should

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have separate awards when offered.

The freestyle program will be judged in accordance with the IMAC or FAI F3M freestyle flying and judging guidelines, which set of rules will be used is at the event organizer's discretion and must be communicated to competitors in advance.

29. Regional Points Championships

Any competitor that wishes to qualify for regional points must be an LSA member in good standing. If a competitor joins LSA mid-season, only contests attended from that point on will qualify for regional points.

Points per contest will be calculated from the contest's final results. The winner of each class will receive 1000 points. The following competitor's scores will be a normalized score based on their final score respective to the winner's. Regional Points are rounded to the nearest whole number.

Example:	First Place: 6875	Points: 1000
	Second: 6723	Points: 978
	Third: 6145	Points: 894
	Fourth: 5475	Points: 796

Qualified contests will be those listed in the LSA contest calendar shown on the LSA website under the respective regions. Contests must comply with SAMAA, LSA and IMAC standards and must have their results verified and posted within 14 days to count towards Regional Points.

A "Regional Finals Contest" as denoted by the respective Regional Director will count the same point's value towards the region's point's series as regular regional contests... The Regional Finals Contest will be a normal LSA contest open to all classes.

A competitor may receive points for his/her region, as well as count two contests outside of his or her region. Any competitor is eligible to fly in any region, regardless of residence.

The class point champion of the regional series is calculated by summing the total normalised points of the best three results for each competitor in each class.

In the case of a tie for a class point champion, the pilot who finishes highest in his top 3 LSA Regional Qualified contests, based upon the total number of pilots defeated, would win. If there is still a tie, the pilot who places highest at the Regional Final contest will win the regional title. If the tie still cannot be resolved, the raw scores for the top 3 contests will be used to break the tie.

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Example: In the example below Pilot B would win the regional title. Pilot B earned 3000 points and defeated 22 pilots versus Pilot A's 3000 points and 14 pilots defeated.

Pilot A Points	Pilots Defeated	Pilot B Points	Pilots Defeated
1000	3	1000	7
1000	5	992.45	3
1000	4	1000	0
1000	1	1000	12
1000	5	1000	3
1000	2	1000	0
993.7	0		
1000	2		
Total	Tiebreaker	Total	Tiebreaker
3000	14	3000	22

If a pilot is the only competitor in his class, points will be awarded to that competitor if a complete contest is flown as set forth by the contest standards guide. A pilot will not be eligible for regional awards in more than one category. If a pilot moves into a higher competition class during the year, the pilot will have to advise his/her Regional Director of the change AND at that time, will also advise in which class he/she would like his/her regional points calculated.

For the purpose of Regional Points, if a Basic-class competitor places first, second or, third in the Regional Points, regardless if competitor has not placed in enough Basic contests to move up, the competitor will have to move to the Sportsman class in the following season. In the event that the competitor doesn't move up, any points earned in the following season will not count toward the next year's Regional Points Championship.

Any competitor may petition the appropriate Regional Directors or BOD to change his/her home region. These requests must be made yearly in writing, and are considered on a case by case basis.

30. Nationals

National Competition events will be held as individual events with the exception of the overall LSA Champion's Cup. National events can also be counted as out of region regional event towards a competitor's regional point score. The LSA Overall Champion's Cup result will be calculated from the Regional Points Championships but taking all National competitor's regional results into account over the current Nationals seasonperiod, the Nationals results will count as a single regional result towards the LSA Overall Champion's Cup.

In the event that more than one national level event is held during a National season, the best single result will be used as their nationals result towards the LSA Overall Champion's Cup.

The Basic class is flown at national events.

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All LSA competitors can and may well be asked to assist the organisational committee and officials of the National event to help with the below tasks:

- The setup, carrying and packing-up of all LSA/SAMAA infrastructure such as gazebos, chairs, tables, banners, speakers, etc.
- Assisting with the judging panel whereby you will be asked to scribe for a particular judge or judging officials during the event in order to assist with judging accuracy etc.
- Pilot Judging is very common overseas and we urge any pilot who shows an interest in being a judge or assisting to step forward and to learn the schedules and to become a pilot judge.
- Assist with being a caller for the judges and to safely and securely submit all judges score sheets to the relevant scorer.

31. National Team Selection

National Team selection will be based on competitors best three regional results summed plus double their Nationals normalised points score.

In the event that more than one national event is held during a national season a competitors single best national result will be used for team selection.

$$(R1 + R2 + R3) + (Nx2) = \text{Team Selection points}$$

Tie breaks will be resolved as per the Regional Points Championship, based on total number of competitors beaten and, if required, total raw scores.

Team selection and participation is subject to all relevant SAMAA, RASAA and SASCOC regulations, procedures and ratification.

Should organizers not be able to have all intended rounds completed during a contest, the following criteria will be applied.

- 4 rounds completed - best 3 scores to count
- 3 rounds completed - best 2 scores to count
- 2 rounds completed - best score to count
- 1 round completed - completed round to count

32. Penalties Disqualification & Disciplinary Procedure

The CD of a competition may penalise a competitor for misconduct and these penalties may be in the form of operational disadvantage, deduction of points, alteration of placement order, disqualification or penalty as a consequence of a disciplinary hearing. Disciplinary hearings should as a norm only be used when the CD of a competition has exhausted all other means of correcting behaviour as in 32.2 below:

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 are deduction of not less than 5% of the best score obtained during a heat. These infringements will carry a 2 year record against the person responsible for the

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infringement. These offences will be known as category B offences. In the event of a repeated infringement of this nature the LSA secretary may call the party to a disciplinary hearing.

There are however infringements which cannot be tolerated. These are issues of gross misconduct such as Fighting, Drunken disorderly conduct, Cheating, Making derogatory comments against Judges and Officials, and disobeying safety protocols for the host club or SAMAA safety rules or IMAC safety rules. These will be known as category A offences.

The CD of the competition may call a disciplinary hearing in the event of gross misconduct of a competitor (as described above). The competitor will be notified in writing within an hour of a misdemeanour having taken place. All witnesses and representatives of both, transgressor and the CD will attend such hearing. This hearing will take place within an hour of the end of a day's competition proceedings. The CD will appoint an independent Chairperson to officiate at this hearing.

The following will be used as a guideline for the hearing:

- The hearing will commence with the CD stating the alleged misdemeanour to the members present (the competitor charged with the misconduct must be made fully aware of the charge/s),
- The competitor will then have an opportunity to state in defence any reasons or facts to clarify why the misdemeanour took place,
- The CD will then call on any witnesses to substantiate or validate the misdemeanour,
- The competitor charged with the misdemeanour will then have an opportunity to call on witnesses to substantiate or validate his/her innocence,
- The Chairperson may at any time call on SAMAA for assistance or take a recess to consider all the facts,
- The Chairperson will then present his findings to the members present and call for time to consider sanction. (As an observation it is not the purpose of an enquiry to prove beyond all reasonable doubt that a transgression has been committed by an offending party. It will be of sufficient evidence where, two persons of the world, have noted or observed an infringement, or that the transgression had taken place. Further the swifter the transgression is dealt with the greater the impact and effectiveness of correcting the behaviour).

Sanction

The sanction for the following offences are as follows but not limited to:

Category A offences; Fighting, Drunken Disorderliness, Cheating, making Derogatory Remarks against Judges or Officials and Disregarding a Safety Protocols as per the above paragraph;

Disqualification from the event and a ban of 2 years from any Regional or National Competition.

Category B Offences; Failure to comply with requirements either by mistake or inadvertence;

Reduction of not less than a 5% in score of the best core obtained during the event.

Once the Chairperson has informed the competitor of the sanction to be imposed, the

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Transgressor will be informed in writing of the sanction and a copy of the hearing document and sanction forwarded to the SAMAA offices (see below Disciplinary record document).

A competitor who has been disqualified may not claim back any part of his competition fee and will not be eligible for any prizes awarded during the event.

Should a competitor charged with a category A offence, refuse to attend the proposed hearing, he will be deemed to have been guilty of said offence, in absentia. The minimum of a two year ban from competition will then come to bear on such a competitor.

33. Protests

All protests must be presented **in writing** to the CD at the competition and must be accompanied by a protest fee, no more than **1 Hour** after the incident has occurred. The protest fee will be an amount equal to ½ the entry fee for the relevant competition or stipulated in the SAMAA rules/entry form.

The protest fee 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 organizers prior to the start of the event. A Jury President must be appointed by the contest organizers.

The jury may be made up as follows:

- (1) Contest Director,
- (2) LSA Committee member/s,
- (3) Senior pilot competing in a different class to the person protesting,
- (4) Senior judge officiating official.

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 protester.

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 with the CD within **1 Hour** from the incident, or within one hour of coming to the pilot's attention.

After announcement of the daily results: any protest relating to the results must be submitted to the CD within **1 Hour** after announcement of the results.

After announcement of the final competition results: any protest relating to the results must be submitted to the LSA secretary within 15 days after announcement of the results. If necessary this protest may be passed to SAMAA for adjudication.

The Jury shall after deliberations notify the pilot immediately of the outcome of his protest and quote the reasons for the ruling or disqualification. The IMAC Rule book supersedes this Sporting Code for the adjudication of protests involving any class.

Should the jury be called upon to adjudicate any matter not dealt within the sporting code or IMAC rules, they should use their discretion in coming to an amicable solution. The finding

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of a jury in such an instance will not be binding on the jury of any future competitions.

A verbal complaint may also be submitted to the CD, the purpose being that a correction can be obtained without the need to make a formal protest and will only apply to minor discrepancies.

34. Judging

Local Judges Training and Selection Criteria, LSA **shall** use the following guideline for selection, training and monitoring local judge's performance:

The requirement for a judge shall be any individual who has an interest in radio controlled aerobatic competition judging and who is a paid up LSA member.

The training shall consist of the following:

- Studying of the LSA Sporting code.
- Studying of the IMAC Rule book.
- Participating in the IMAC online Judging Workshops/Sessions.
- Practical training by a level 2 or higher judge.
- Writing and passing an open book examination.

Judges career categories shall be the following:

- Level 3 (Trainee Judge) League competitions under supervision of a level 2 judge.
- Level 2 (Qualified Judge) League, Nationals and TOC.
- Level 1 (Qualified Judge) International competitions.

35. SAMAA Proficiencies for LSA Members

These LSA proficiency criteria outline the evaluation requirements for SAMAA Bronze, Silver, Gold and Instructor ratings. SAMAA proficiency ratings may be awarded to LSA pilots according to achievements during participation at LSA recognized national competitions.

- A SAMAA Silver proficiency rating will be awarded to any Basic, Sportsman & Intermediate or higher class pilot who achieved a minimum average score of 55% in any recognized national LSA competition.
- A SAMAA Gold proficiency rating will be awarded to any Advanced or Unlimited pilot who achieved a minimum average score of 60% in any recognized national LSA competition.
- A SAMAA Instructor proficiency rating will be awarded to any LSA pilot that represented South Africa at any previous Aerobatic World Championship. The Committee undertake to scan their records for highest proficiency rating that LSA pilots qualify and advise the pilot of the result and arrange with SAMAA to award the applicable proficiency rating. LSA undertakes to regulate the process and to provide SAMAA with the information on pilots that qualify on an annual basis.

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Disciplinary Hearing Record

Date..... Venue.....
Chairperson..... Witness.....
Complainant..... Further witness.....

Offending Party.....Offending Party/Witness.....
Additional witnesses.....

Charge/Offence.....
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LSA/Witnesses.....
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Offending Party Witnesses
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Chairperson findings of innocence or Guilt
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Items in Mitigation for Sanction
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Sanction.....
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Signed Chairperson.....
Signed Competitor.....