

# **AERO CLUB OF SOUTH AFRICA (AeCSA)**

## ***Sport Aerobatic Club of South Africa (SAC)***

### ***Manual of procedure:***

#### ***Aviation Recreation Organisation***

##### ***Aerobatics***

## Document Status

This document is a controlled document. An alphabetical letter as the issue identifier, e.g. Issue A, will identify draft issues of this document. Once finalised and accepted by the Executive Committee of the Sport Aerobatic Club of South Africa and the Board of Directors of the Aero Club of South Africa, the issue status will be raised to a numerical value, e.g. Issue 4. The Executive Committee of the Sport Aerobatic Club of South Africa will allow no changes to a numerical issue document without approval of such changes.

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# Document Approval

## Sport Aerobatic Club of South Africa Approval

The Executive Committee of the Sport Aerobatic Club of South Africa has been authorised to approve this document.

<b>Position</b>	<b>Name</b>	<b>Signature</b>	<b>Date</b>
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## Definitions

AeCSA	Aero Club of South Africa
ARO	Aviation Recreation Organisation as defined in CARS
CARS	Civil Aviation Regulations of South Africa
CCA	Commissioner: Civil Aviation
CIVA	International Aerobatics Commission (FAI)
C of A	Certificate of Airworthiness
Executive Committee	Executive Committee of the SAC
FAI	Federation Aeronautique Internationale
LSA	Light Sport Aircraft
MoP	Manual of Procedure
RAASA	Recreational Aviation Administration of South Africa
SAC	Sport Aerobatic Club of South Africa
SACAA	South African Civil Aviation Authority

## Summary

The Sport Aerobatic Club of South Africa (SAC) is applying to the Director of Civil Aviation for approval for the renewal as the Aviation Recreation Organisation (ARO) of South Africa for Aerobatics in terms of the Civil Aviation Regulations (CARS), as amended.

This document includes motivation for and substantiation of the application.

# Chapter 1

## Application for approval

### 1.1 Application is herewith made to the Director, as follows:

- 1.1.1 Approval of the Sport Aerobatic Club of South Africa (SAC) as the Aviation Recreation Organisation (ARO) of South Africa for Aerobatics in compliance with the Civil Aviation Regulations, as amended.
- 1.1.2 Approval for assuming the Aviation Recreation Organisation (ARO) responsibilities for Aerobatics by not later than 1 June 2013 and;
- 1.1.3 Approval of the structures, functions, procedures and documents referred to in, and supplied with this application.

### 1.2 Aviation Recreation Organisation responsibilities applied for include:

- 1.2.1 Establishing, controlling and enforcing, of safety standards relating to aerobatics in Aerobatic Competitions and Aerobatic Training falling within SAC's control. (Note: Aerobatic flying at Airshows is specifically controlled by ASSA, a section of AeCSA and administered by RAASA).
- 1.2.2 Determining the standards for the conduct of aerobatic flying within SAC's control, this to include any International Aerobatic events as approved by the FAI and SASCOC.
- 1.2.3 Determining the standards of Aerobatic Ratings controlled by SAC and issued by RAASA
- 1.2.4 The recommendation for the issue of Aerobatic Ratings as administered by RAASA.
- 1.2.5 The control and administration of Aerobatic Contests, as per the SAC Regulations/Manual of Procedure for the conduct of Aerobatic Contests (Annexure 2)

### 1.2.6 Selection of local competitors to participate at International events

The club selects and approves of persons who compete under the banner of South Africa at International events, ensuring an appropriate standard of competence is achieved. The procedure for National Team selection for World Championships is as follows: -

Championships are bid for and announced at the annual CIVA meeting held in November. Currently World Championships are held in the following classes:-

- a) Unlimited Power
- b) Advanced Power
- c) Intermediate/Yak52 Power
- d) Unlimited Glider
- e) Advanced Glider

#### 1.2.6.1 Invitation to potential participants

As soon a World Championship has been established the SAC CIVA Delegate should inform the SAC Committee, who not later than the 1<sup>st</sup> January should inform club members and invite interested members to announce their intention to participate in the selection procedure for the upcoming championship. Normally two years notice is given for any World Championship, but this is not a requirement. A deadline for applications should be established, this should normally be ahead of the South African National Championships, where a World Contest is announced two years in advance or by 1<sup>st</sup> February for a Championship to be held in the current year.

#### 1.2.6.2 Selection Committee

The selection Committee shall consist of the SAC Board of Judges and those SAC Committee Members who are not standing for selection for the World Championship at hand.

#### 1.2.6.3 Selection Procedure

There are two possible streams for such applications, being: -

- a) Applications for less than the maximum amount of Team Members as specified in the CIVA Regulations

Or



- b) Applications from more persons than the maximum Team Members allowed as specified in the CIVA Regulations

1.2.6.3.1 Where there are less applicants as per a) above

The Selection Committee shall ensure that such applicants have met a standard of at least 70% at the National Championships immediately before the World Championship or if this is not appropriate due to timing, at a Contest where all three programmes have been flown.

1.2.6.3.2 Where there are more applicants as per b) above, the following procedure will apply:-

- a) Applicants shall commit themselves to attending the World Championship if selected and will be required to pay a deposit equivalent to the entry fee for the World Championship to SAC.
- b) Applicants will be required to attend all the National Championships prior to the World Championships, or at least three competitions in the twelve months preceding the World Championship if circumstances do not allow attendance at the Nationals.
- c) The Selection Committee shall take into account the scores at the latest National Championships when selecting the Team and only in exceptional circumstances take into consideration other competitions. (Forced omission from the Nationals etc.) The principal involved is that SAC should field the strongest team possible based on the latest best information available.
- d) SAC will pay the entry fees to the World Contest Organiser by the deadline, if there are still more applicants than the maximum allowed in CIVA Regulations entry fees for a full team will be sent with a note that the final names will follow.
- e) SAC will announce a squad at the end of the National Championships if the World Championship is to take place in the following calendar year, or a Team if the World Championship is within the current calendar year.
- f) Any person failing to make the team will have their deposit refunded.
- g) The SAC Selection Committee shall give the reasons for their selection in writing as appropriate to all applicants.
- h) In general all selected Team Members should have achieved an average of at least 70% as a guideline for selection; only in exceptional circumstances should this standard be waived.

- i) The selection and announcement of a squad, does not preclude any further pilots being added, should they achieve an appropriate standard between two National Championships.

#### 1.2.6.4 National Colours

All persons representing South Africa at an official World Championship and having met the required selection criteria should be awarded National Colours as per the AeCSA requirements and guidelines.

## Chapter 2

# Current delegated responsibilities

The Sport Aerobatic Club of South Africa (SAC) is currently performing the following functions:

### 2.1 Aerobatic Ratings

At present SACAA authority has designated RAASA to issue aerobatic ratings as recommended by SAC, to those pilots who have successfully followed the SACAA approved syllabus for aerobatic training; thus

- a) Allowing pilots to compete in aerobatic competitions.
- b) Allowing pilots to practise aerobatics within the parameters set out in the CARS.

### 2.2 Accident Investigation

As per CARS

### 2.3 Organising and controlling Aerobatic Contests

The SAC organises and controls aerobatic contests, as per the SAC manual of procedures & the SAC Regulations for Aerobatic Contests (Appendix 2)

## **Chapter 3**

# **Composition of the Sport Aerobatic Club (SAC) as the approved Aviation Recreation Organisation of South Africa for Aerobatics**

### 3.1 Sport Aerobatic Club (SAC) of South Africa Executive Committee

The Sport Aerobatic Club Executive Committee will consist of the persons elected at the annual general meeting, as per the Club Constitution.

### 3.2 The Sport Aerobatics Club's Constitution is attached (Annexure A)

## **Chapter 4**

# **Management and administration**

The management and administration of the responsibilities set out in this document will continue to be with the Executive Committee of the Sport Aerobatic Club of South Africa (SAC).

## Chapter 5

# Issue of Aerobatic Ratings Piston Engined Aircraft & Gliders

### 5.1 The following categories of Aerobatic Ratings are applicable: -

- a) Piston Engined Aircraft (excluding LSA aircraft)
- b) Gliders
- c) Light Sport Aircraft (LSA)

### 5.2 Persons approved for giving instruction fall into four categories: -

- a) Professional Instructors as defined by CARS, who themselves hold at least a Classic Aerobatic Rating as issued by SAC or an LSA rating as appropriate.
- b) SAC approved persons, being those SAC members who have held or would have been eligible to hold at least an Advanced Rating and who currently hold at least a Classic Rating issued by SAC, and who are approved by the SAC Executive Committee.
- c) Persons deemed to have sufficient experience in the training of aerobatics, (such as former military instructors), who have been approved by the SAC Executive Committee.
- d) An instructor operating under a SACAA approved ATO for aerobatics.

A list of such persons outlined in a), b) & c) above will be maintained on the SAC website. [www.aerobatics.co.za](http://www.aerobatics.co.za)

### 5.3 Requirements for the issue of an Aerobatic Rating

- 5.3.1 For the purpose of general aviation training, incipient and positive spins of up to two turns are not to be considered to be aerobatic manoeuvres in terms of these regulations, if carried out in the course of training or for practise associated with such training.
- 5.3.2 Aerobatic Ratings are issued per aircraft type; an approved aerobatic instructor (as defined in 5.2) will approve each aircraft type separately.

5.3.3 The procedure for the issue of Aerobatic Ratings falls into two categories:

a) Those Candidates with no aerobatic experience

&

b) Those Candidates with proven aerobatic experience

#### 5.4 Candidates with no proven aerobatic experience

5.4.1 Candidates will undertake a course of instruction as set out in the SAC “Guide and syllabus of instruction” document as held by AeCSA and forming part of this document (Annexure C).

5.4.2 It is a requirement that the initial aerobatic rating be obtained by means of dual aerobatic instruction, given by persons outlined above in 5.2, it is specifically forbidden that aerobatic instruction be given from the ground via radio or briefing etc.

5.4.3 Both the Instructor and Candidate must hold a conversion for the type of aircraft to be flown; in terms of the CARS.

5.4.4 On the successful completion of the aerobatic instruction to the satisfaction of the aerobatic instructor, which must include a solo demonstration of a linked Graduate Sequence, the required documentation must be submitted to RAASA.

5.4.5 RAASA having established that the candidate is a fully paid up member of both SAC & AeCSA, shall issue a “**Provisional Aerobatic Rating**”, this will remain valid for a period of two years or until upgraded to a full Aerobatic Rating within this two year period.

5.4.6 The holder of a Provisional Aerobatic Rating is then entitled to practise aerobatics within the parameters set out in the CARS and enter SAC competitions at the Graduate level, until upgraded as per SAC procedures.

5.4.7 Should the holder of a Provisional Aerobatic Rating not achieve a 70% average score at the Graduate level or fail to appear at a contest within the two year period from date of issue, the provisional rating will fall away and the candidate will be required to carry out further training with an approved instructor before applying for a new provisional rating.

- 5.4.8 The holder of a Provisional Aerobatic Rating may move into the Classic, RV, Sportsman or LSA categories (aircraft type dependent) once a level of at least a 70% average score has been achieved for the approved SAC Graduate sequence.
- 5.4.9 The holder of a Provisional Aerobatic rating, having established a 70% average in a competition at Classic, RV, Sportsman or LSA level, that has included three sequences including an unknown sequence, may apply to RAASA to upgrade to a full **Aerobatic Rating** on recommendation from SAC.
- 5.4.10 A full Aerobatic Rating at a specific level, acts as a provisional rating for the next level upwards, when a 70% average score has been achieved at the higher level at a contest with three sequences flown including an unknown sequence, the rating is confirmed at this higher level.
- 5.4.11 Records are kept of the various levels achieved at competitions and is published on the SAC website [www.aerobatics.co.za](http://www.aerobatics.co.za) , which is updated after each contest.

## 5.5 Pilots with proven aerobatic experience

Pilots may motivate their application to be classified in an appropriate class based on their experience, to a Board of SAC Judges or the SAC Committee. On the successful approval of this motivation, the candidate will then be required to demonstrate their ability to a level of 70% for the current SAC known sequence for the level applied for, before a Board of Judges. This should be carried out at an SAC contest.

## 5.6 Validity of an Aerobatic Rating

### 5.6.1 Provisional Aerobatic Rating

This is valid for a two year period from the date of issue by RAASA. If the holder has not upgraded to a full Aerobatic Rating within this period or has not achieved a 70% average at the Graduate Level at an SAC contest, the provisional aerobatic rating becomes null and void and the holder will be required to undertake a further course of instruction as outlined in section 5.4 of this document. A holder of a provisional aerobatic rating, who has achieved 70% at the Graduate level but has not entered a contest at a higher level, may renew the provisional aerobatic rating for a further period of two years.



#### 5.6.2 Aerobatic Rating – Classic/RV/Sportsman/LSA (Competitions)

This is valid for a two year period from the date of issue by RAASA. In order to maintain this level of aerobatic qualification the holder is required within a twelve month period from the date of issue to appear at an SAC contest and achieve a 70% average score. Failure to achieve this level will result in the down grading of the rating to the provisional level.

#### 5.6.3 Aerobatic Rating – Intermediate, Advanced & Unlimited

This is valid for a two year period from the date of issue by RAASA. In order to maintain the rating at these levels, the holder is required within a twelve month period from the date of issue to appear at an SAC contest and achieve a 70% average score. Failure to achieve this level will result in the down grading of the rating by one class, i.e. Advanced would revert to Intermediate.

#### 5.6.4 Aerobatic Rating – Classic Harvard Club

This is issued on the basis of the normal classic sequence and is valid for a period of two years. An annual renewal check is carried out under an approved instructor within the Harvard Club, the documentation showing the satisfactory performance at this annual check will be forwarded to RAASA and is sufficient to renew the rating at the Classic Harvard Club level.

#### 5.6.5 Aerobatic Rating Airshow

The initial aerobatic rating will be issued as per 5.4 however for those persons not involved in competition aerobatics but who continue to fly aerobatics at airshows an endorsement by a DAE confirming at least four incident free performances will be sufficient for renewal of the aerobatic rating at the same level as issued originally.

#### 5.6.4 Once the full Aerobatic Rating is achieved and issued by RAASA, the level of validity (class) will not be shown on the card issued to the holder. In order to establish the level of the rating, reference must be made to the SAC website [www.aerobatics.co.za](http://www.aerobatics.co.za), where the level of rating is shown; this document is updated after each contest.

## Chapter 6

# Issue of Aerobatic Ratings Jet and Turbine Aircraft

## JET AND TURBINE AEROBATIC RATING

### 6.1 INTRODUCTION

Any pilot who wishes to fly recreational aerobatics or to incorporate aerobatics into a display at an airshow, including any member of a formation team performing aerobatics or who as part of a non-aerobatic formation display who breaks away and displays aerobatics on their own, will require to hold an Aerobatic Rating.

With the inclusion of ex-military type aircraft on the civilian register, the SACAA has instructed the Aero Club of South Africa (AeCSA) to ensure that operators of such types have appropriate skills and qualification. In the interest of safety of both the individual and the general public, it has been deemed essential to incorporate an aerobatic rating for jet and turbine powered aircraft. This process is administered by the Recreation Aviation Administration of South Africa (RAASA).

Historically, the issue of an aerobatic rating was restricted primarily to piston engine powered aircraft. The Sports Aerobatic Club (SAC) acknowledges that jet/turbine aircraft types will not participate in competition flying, however, in an effort to ensure that a safe operation is maintained, pilots of jet and turbine aircraft have from 1<sup>st</sup> November 2005 been required to be the holders of an Aerobatic Rating for jet or turbine powered aircraft before being permitted to perform aerobatics.

Pilots requiring a jet/turbine Aerobatic Rating will be able to liaise with a panel of AeCSA approved Designated Aerobatic Examiners (DAE) near to their location. A list of approved DAE's may be obtained from the Recreation Aviation Administration of South Africa (RAASA).

## 6.2 LEGISLATION

Government Gazette 25194 R999 11/07/03 gave force to what is referred to as an “Aerobatic Rating”. The Civil Aviation Authority (CAA) of South Africa have transferred the task of the issuing of “aerobatic ratings” to the Aero Club of SA, who in turn, have delegated this responsibility to the Sport Aerobatic Club (SAC), categorised as an “approved organisation” in terms of SA-CATS-FCL 61.38.1. Furthermore, in terms of CAR Part 149, the CAA has designated the responsibility for regulating certain areas of aerobatic flying to the Sport Aerobatic Club (SAC), a section of the Aero Club of South Africa. Therefore, the SAC is empowered to examine pilots wishing to gain an Aerobatic Rating whilst RAASA will be responsible to administer, record and issue said ratings.

The SAC has developed and adopted from the international body governing aerobatics (CIVA), a clearly defined, tried and tested set of criteria, syllabi and rules and regulations governing aerobatic flight. This accumulated body of knowledge is summarised in a comprehensive document (CAA ARO 002), which has SACAA approval. The Manual of Procedures has been amended to also incorporate activities governing jet and turbine powered aircraft. Guidelines from certain military operations have been incorporated to formulate an attainable and safe performance. In terms of CATS 61.38.3, pilots are to conduct a “skills test” prior to the issue of an aerobatic rating. A “skills test” report in terms of Document CAA/ARO 0002 *et al* will be submitted on application.

## 6.3 RESTRICTION ON OPERATION

By form of reference, the following Part 91 Regulation (CAR) is brought to the attention of all operators;

### **CIVIL AVIATION REGULATION**

*91.02.32 except when necessary for taking off and landing, or except with prior written approval of the Commissioner, no aircraft*

- (a) Shall be flown over built up areas or over open-air assembly of persons at a height less than 1000 feet above the highest obstacle, within a radius of 2000 feet from the aircraft;*
- (b) when flown elsewhere than specified in paragraph (a), shall be flown at a height less than 500 feet above the ground or water, unless the flight can be made without hazard or nuisance to persons or property on the ground or water; and*
- (c) Shall circle over or do repeated over-flights over an open air assembly of persons at a height less than 3,000 feet above the surface.*

## 6.4 MINIMUM ENTRY QUALIFICATION FOR A JET/TURBINE AEROBATIC RATING

In order to satisfy the SAC, and before a jet/turbine aerobatic rating is issued, flight crew are to produce proof that they have completed a formal **Type Training Course** following the guidelines as spelled out in CAR Part 94 *et al.* The Civil Aviation Technical Standard CATS-OPS-94 specifies the training syllabus that is to be followed for ex-military aircraft.

### CIVIL AVIATION REGULATION

#### 94.01.1 (5)

*Notwithstanding the provision of sub-regulation (4), non-type certificated aircraft operated in terms of this Part may be used for the training of its registered owner: Provided the training is provided by an approved ATO and the airworthiness requirements in respect of a non-type certificated aircraft used in training are met.*

Although, the initial training has no part on the issuing of an aerobatic rating per se, the requirement for the issue of an aerobatic rating for jet/turbine aircraft is based on the prior knowledge that the applicant satisfies the minimum requirements for a solid foundation in their training on type. The basis of the training is broadly spelled out below;

**94.01.2 (1)** No person shall operate a non-type certificated aircraft unless –

- (a) In the case of aircraft classified in the paragraphs (a) to (g) of sub-regulation [24.01.1\(2\)](#) for such aircraft an Authority to Fly or Proving Flight Authority has been issued in terms of these regulations;
- (b) The aircraft is in an airworthy condition; and
- (c) The pilot-in-command is the holder of a valid pilot licence with the appropriate rating for the particular category and type of non-type certificated aircraft.

**61.09.2 (1)** an applicant for a class or type rating must have successfully completed the appropriate training as prescribed in Document SA-CATS 61.

(2) In the case of training for a single-pilot multi-engine class rating, or the applicant's first Single-pilot multi-engine type rating, the training must consist of at least –

- (a) 7 hours of theoretical knowledge instruction in multi-engine aeroplane operation;
- and

(b) 6 hours dual flight training in multi-engine aeroplane operation, including not less than 2 hours 30 minutes dual flight training under normal conditions and at least 3 hours 30 minutes dual flight training in engine failure procedures and asymmetric 260 flight. At most 3 hours of the dual flight training may be acquired in an approved FSTD.

(3) An applicant for a type or class rating on a high performance single pilot aeroplane who is not the holder of an ATPL, or who has not obtained credit for the ATPL theoretical knowledge

Examinations must undergo additional training as set out in Document SA-CATS 61.

(4) An applicant for a Warbird type rating –

(a) Who is the holder of an ATPL with applicable military type experience may be endorsed with the applicable Warbird type rating.

(b) Who is the holder of an ATPL without applicable military type experience must undergo training as described in Document SA-CATS 61 for endorsement of the Warbird type rating contemplated.

(c) Who is the holder of all ATPL theoretical knowledge credits and has applicable Military type experience may be endorsed with the applicable Warbird type rating.

(d) Who is the holder of all ATPL theoretical knowledge credits but who does not have applicable military type experience, must undergo training as described in Document SA-CATS 61 for endorsement of the Warbird type rating contemplated.

(5) Pilots operating in terms of Parts 91, 94, 96, 121, 127, 135 and 138, who are operating aircraft which require two or more pilots for the operation, must undergo a multi-crew cooperation training course detailed in Document SA-CATS 61.

**Note:** In terms of the Regulation, the Commissioner has the privilege to exempt the requirement for an ATPL to operate a “Warbird”.

## 6.5 Ground Training

Ground training should ideally have been conducted on a formal classroom lecture basis, although with certain less sophisticated types, academic self-study could be considered. On completion of the ground training, the applicant shall successfully complete a *written* examination to prove his or her knowledge of all aircraft systems. Reference shall be made to the relevant sections of the approved Flight Manual, Performance Manual and Technical Manuals.

**61.01.16** (1) Training for the purpose of acquiring a licence, rating or validation as required by this Part, may only be provided by the holder of an aviation training organisation approval issued in terms of [Part 141](#) and under the provisions set out in Document [SA-CATS-FCL 61](#).

## 6.6 Normal and Emergency Procedure Training

Normal and Emergency procedures shall ideally be conducted on a simulator, but where impractical, they shall be conducted *in situ* in the form of practice drills and practical tests on and in the aircraft. Blindfold cockpit touch drills are to be conducted to simulate emergency procedures to ensure students have complete familiarity with the positioning of essential switchology and systems.

## 6.7 Initial Type Training Requirements

The Chief Instructor of the approved ATO will investigate and interview the applicant for a type rating and will prepare a letter of recommendation for the CAA regarding the amount of training required.

### CIVIL AVIATION REGULATION

#### 94.02.01 (5)

Once the Commissioner has studied the information submitted in terms of subparagraphs (3), (4) and (5), and is satisfied that the training will be done in a responsible and safe manner, minimum requirements regarding the training of the particular individual will be supplied in writing by the Commissioner on Form CA94.02.1.

**61.01.19** (1) An applicant for a licence, revalidation, class or type rating or any familiarisation or differences training for an aircraft must have the applicable rating endorsed in his or her pilot logbook as described in Document [SA-CATS-FCL 61](#).(2) The endorsement must include, but is not limited to, the following details –(a) Date of the skills test;(b) Aircraft registration and type;(c) Name and licence number of examiner;(d) Name of the aviation training organisation (ATO).(3) The flight instructor or designated flight examiner conducting a skills test or revalidation check shall stamp, sign and date each page of the applicable form before forwarding to the

South African Civil Aviation Authority for processing and record keeping. The stamp shall include the following details –(a) Initials and surname of flight instructor or examiner;(b) Pilot licence number of flight instructor or examiner;(c) Designation applicable to the flight instructor or examiner, such as Grade II Instructor or DFE I (A), as the case may be.

Extracts from the guidelines established in CATS-OPS-94 section 94.02.01 (3) are included below for reference:

EXPERIENCE LEVEL	QUALIFICATION MILESTONES
<i>Candidate has <b>less than;</b> 300 hours total flying time.</i>	<i>Minimum of; 40 hours instruction on type, of which 5 hours could be on a simulator of that type. Minimum of; 15 hours with a “check pilot” who should be a qualified instructor on type.  <b>Note:</b> If an instructor is not available, it must be someone who has done the conversion to the instructor’s position on type.</i>
<i>Candidate has <b>less than;</b> 300 hours total flying time of which; 100 hours are on jet- engine aircraft.</i>	<i>Minimum of; 30 hours instruction on type, of which 5 hours could be on a simulator of that type. Minimum of; 10 hours with a “check pilot”.</i>
<i>Candidate has <b>more than;</b> 500 hours total flying time including more than; 100 hours as pilot-in-command on a civilian jet aircraft.</i>	<i>Minimum of; 10 hours instruction on type.  Minimum of; 10 hours with a “check” pilot.</i>
<i>Candidate has; a <b>military jet rating</b> obtained as a civilian on a similar aircraft type.</i>	<i>Minimum of; 7 hours instruction on type. Minimum of; 5 hours with a “check” pilot.</i>

## 6.8 Basic Flight Training Syllabus

It is recommended that a basic minimum number of aspects are covered during the initial aircraft conversion. The basic elements of a proposed flying training syllabus (as applicable) for a type rating are specified below.

- *Aircraft Familiarization*
- *Effect of Controls (including spoilers, boundary layer control, airbrakes, etc.)*
- *Climb and Descent Profiles*
- *Low Speed Handling and Aircraft Behaviour*
- *Stalling (if applicable) at Various Speeds and Configurations*
- *Medium, Steep Turns and Maximum Rate Turns*
- *Accelerated Stalling*
- *Inertial Cross-Coupling*
- *Aerodynamic Cross-Coupling and Divergence*
- *Incipient Spinning and Spinning (if permitted)*
- *Precautionary Landings*
- *Forced Landings*
- *Approaches (different speeds and configurations)*
- *Landings (different speeds and configurations)*
- *Introduction to instrument flying (if applicable)*
- *Aircraft Emergencies:*
  - *Engine failures/ flame-outs during different stages of flight*
  - *Engine fire/overheat during different stages of flight*
  - *Generator/Alternator Failure*
  - *Hydraulic/Pneumatic Failures*



- *Flight Control Failures*
- *Flap/Lift Augmentation Device failures*
- *Undercarriage Failures*
- *Smoke in Cockpit*
- *Pressurization Failure*
- *Loss of Canopy in Flight*
- *Ejection Procedure and “Bail-out” Limitations*

## 6.9 MINIMUM QUALIFICATION FOR A JET/TURBINE RATING

Given that jet and turbine powered aircraft have a much larger performance envelope than most piston powered aircraft, it is essential that candidates comply with a minimum number of exercises as spelled out in the table below in order to obtain a jet/turbine aerobatic rating.

ENTRY CRITERIA	MINIMUM TRAINING REQUIREMENT
<i>Candidate has <b>no</b> previous aerobatic experience.</i>	<b><i>A minimum of 10 hours aerobatic training on the aircraft type.</i></b> <i>Note: During the conversion to type, aerobatics may form parts of the training</i>
<i>Candidate <b>has an aerobatic rating</b> issued in terms of Part 61 <b>and has flown more than 6 hours</b> of aerobatics during the preceding twelve months.</i>	<b><i>Minimum of 6 hours aerobatic training on type.</i></b>
<i>Candidate has <b>previous military</b> aerobatic experience but does not have a civilian aerobatic rating.</i>	<b><i>A minimum of 4 hours aerobatic training on aircraft type.</i></b>

<i>Candidate has more than 6 hours aerobic experience on military jet/turbine aircraft during the preceding twelve months and has an aerobic rating.</i>	<i>A minimum of 2 hour aerobatic training on type.</i>
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***Important Note:*** A comprehensive training file or similar records reflecting the history of training for the candidate shall be kept for presentation to the AeCSA, SAC, RAAASA or the CAA if so required.

## **6.11 Procedures for Recurrent Training and Validation**

### **6.11.1 Recurrent Training**

The pilots are expected to verify that they comply with the currency training requirements. When recurrent training is undertaken, the pilot shall make the relevant entry in his flying log book. The flight shall be logged as a dual flight with the name of the instructor as the pilot-in-command.

### **6.11.2 Procedures if Pilots Fail to Maintain the Required Standards**

An approved jet/turbine Safety Officer or Designated Aerobatic Examiner (DAE) performs the check and balance function to ensure that pilots maintains the minimum standard required. Where the Safety Officer/DAE is not satisfied with the standard, they shall discuss the issue with the pilot and suggest the required remedial actions that need to be taken. Should the pilot not comply with the suggestions/recommendations, the Safety Officer/DAE should then notify RAASA who will subsequently notify the Civil Aviation Authority.

### **6.11.3 Procedures for the Issue of an Initial Jet/Turbine Rating for Pilots already Operating Jet/Turbine Aircraft**

The AeCSA is mindful of the cost of jet/turbine aircraft operations and acknowledges that some pilots have already gained experience in jet/turbine aerobatics. In an effort to satisfy a suitable standard, pilots wishing to obtain a jet/turbine aerobatic rating are to validate their capabilities in the form of a “skills test” before a select panel of appointed DAE’s from the AeCSA. The format of the skills test is spelled out in the lesson plan for training which is attached to this document.

#### 6.11.4 Procedures for Single Seat Aircraft

Certain variants on the civil aviation register may only be available as single seat aircraft. In such cases, pilots are to demonstrate their currency on the dual seat variant of that type or on an aircraft of similar performance and handling qualities. Should such type or similar type not be available for this purpose, the pilot is to request, in writing, a waiver from RAASA to demonstrate his currency on that particular type.

### 6.12 REQUIREMENTS FOR THE ISSUE OF AN INITIAL JET/TURBINE AEROBATIC RATING

For the issue of an initial Jet/Turbine aerobatic rating, the following criteria shall be complied with;

- The candidate must be a member of the Aero Club.
- The candidate must be a member of the Sports Aerobatic Club (SAC).
- The candidate must be in possession of a valid PPL, CPL or ALTP as issued or validated by the CAA.
- A suitably qualified Designated Aerobatic Examiner (DAE) for Jet/Turbine aircraft must have authorised and signed out the candidate.
- Successful candidates will be issued with a Graduate Aerobatic Rating.
- The candidate must lodge this form with RAASA which will issue the appropriate certificate.
- The candidate must pay RAASA the required fee for the aerobatic rating.
- **Important Note**: It is the responsibility of the candidate/applicant to comply with the above criteria.

### 6.13 RENEWAL OF AEROBATIC RATINGS

Aerobatics Ratings are renewable annually. In order to renew the jet/turbine aerobatic certificate, the following criteria must be met.

- The applicant must be a fully paid up member of the Aero Club of SA.
- The applicant must be a fully paid up member of the SAC.
- The applicant must be in possession of a valid PPL, CPL or ALTP as issued or validated by the CAA.

- The applicant must produce proof of his participation in at least six (6) aerobatic displays in that particular/or similar aircraft type over the past twelve (12) months.
- The applicant must produce proof of his/her competency, signed by a DAE, clearly indicating the limitations to which that pilot may operate. (Exception to this clause may only be granted with the express consent of the SAC committee).
- The applicant must pay RAASA the required fee for the renewal of the aerobatic rating.
- **Important Note**: It is the responsibility of the candidate/applicant to comply with the above criteria.

#### **6.14 LAPSE, SUSPENSION OR AMENDMENT TO THE JET/TURBINE AEROBATIC RATING**

The issue of an aerobatic rating is subject to certain privileges. However, due consideration is given to the issue thereof. In accordance with the responsibilities transferred from the CAA to the AeCSA, and therefore the SAC as the responsible entity for Aerobatic Ratings, the following aspects are to be adhered to

- The SAC committee reserves the right to revoke any SAC issued aerobatic rating.
- The aerobatic rating as issued by RAASA is valid for 12 months from date of issue.
- The aerobatic rating as issued by the SAC, automatically lapses should the pilots' flying license as issued by the CAA, expire in this period.
- A pilot who is the holder of a jet/turbine aerobatic rating who has not presented their aircraft at all during the year, shall forfeit the privileges as the holder of a jet/turbine aerobatic rating and will need to validate before a panel of a minimum of three (3) DAEs before a jet/turbine aerobatic rating is re-issued.
- **Important Note**: It is the responsibility of the candidate/applicant to comply with the above criteria

## 6.15 MANAGEMENT OF THE JET/TURBINE AEROBATIC RATING

In order to retain visibility and ensure a safe operation by holders of a jet/turbine aerobatic rating, the following procedures are to be followed;

### 6.15.1 Guidelines to Management

- A record is to be kept of all the pilots' participation throughout the year.
- A list of pilots, sanctioned by the SAC committee, who may give jet/turbine aerobatic instruction for the SAC, will be published by RAASA from time to time. These instructors may, charge for their services, provided that they hold the necessary qualifications as issued by the SACAA i.e. they are commercial pilots with instructor ratings. Candidates may only log dual time when they have flown with commercial instructors.
- Aerobatic instructors as appointed by the SAC who are not commercially rated may not charge for their services but must be rated on the type of aircraft on which they provide coaching.
- Instructors in the completion of the "skills test" form are urged to do so in as much detail as possible since this form will be kept on record at RAASA. The knowledge and skills imparted in these early aerobatic sessions will form the foundation of the candidate's aerobatic career. These evaluation forms are open to inspection by the CAA and the committee.
- The jet/turbine aerobatic rating is a proficiency qualification on only jet/turbine aircraft and is **not valid** for aerobatic displays, formation aerobatics, and any manoeuvre not specified for by its manufacturer. A separate display authorisation issued by RAASA is required for the purpose of display flying.
- These rules, regulations and considerations may be amended from time to time. It is the responsibility of the holder of an aerobatic rating issued by RAASA to keep abreast of any changes or new developments.

- The attached syllabus and appropriate rating form is based on the SAC Manual of Procedure as approved by the CAA, a copy of which may be requested from the SAC Committee.

### 6.15.2 Discipline

The aerobatic rating confers the privilege of aerobatic flight on the holder. By the same token there exist certain responsibilities. Supporting the club and its activities, setting an example to other pilots by being totally professional in one's approach to the sport and flying in general by never practising new figures or manoeuvres at insufficient altitude.

### 6.15.3 Levels of Qualification for Jet/Turbine Display Competency

All initial jet/turbine aerobatic ratings will be issued in accordance with the Civil Aviation Regulations governing aerobatic flight. However should candidates wish to present their aircraft at a show/display there are certain constraints that will be applied. The SAC recognises and endorses additional ratings, which bear witness to the pilot's ability to fly more and more complicated figures and sequences.

The candidate is examined by a panel of SAC designated aerobatic examiners (DAE's), who will, if successful, recommend to RAASA that he/she be issued with a Jet/Turbine Rating.

The limits of Jet/Turbine Aerobatic Ratings with their lower manoeuvring limits are listed below:

- Initial Issue - lower limit 1,000ft
- 2<sup>nd</sup> Level - lower limit 750 ft.
- 3<sup>rd</sup> Level - lower limit 500 ft.
- 4<sup>th</sup> Level - lower limit 300 ft.

Subsequent applications after the initial display authorisation was granted do not guarantee that a lower limit will automatically be granted. As experience is gained, the candidate may appeal to the Display Authorisation Committee (DAC) for a lower limit which will be taken under review. The applicant should have presented his sequence on at least six (6) occasions at any Air Show South Africa (ASSA) sanctioned show within a 12 month period to come into consideration for the granting of a lower limit. Pilots may receive a lower limit provided that at least three (3) members of the DAC reach consensus on approving the lower limit. Furthermore, the candidate's displays must have been observed by at least two (2) DAC members in the preceding year.

Before being allowed onto the air show circuit, the candidate must have completed a full aerobatic training programme and have demonstrated a full solo sequence of linked manoeuvres. This sequence is to be assessed by the instructor and a panel of at least two other jet/turbine instructors (or RAASA approved DAE's in the absence of jet/turbine instructors or DAE's).

When a pilot wishes to display his aircraft at a show or an event he is to obtain a Display Authorisation from RAASA on recommendation of the instructor.

Under no circumstance is the candidate to use an air show venue as a training environment where either the instructor is flying from the rear seat or a candidate has not yet shown adequate competency before the panel of three DAE's.

- Pilots who are the holder of aerobatic ratings shall only be permitted to display their aircraft within the privileges detailed in their certification documentation. Should pilots not have presented their aircraft within the previous 12 months, they shall automatically revert to the next higher level authorised for displays.

## **6.16 Mentorship Programme**

Owing to the potential risk of display flying of high performance jet/turbine aircraft it is recommended that candidates select a mentor (or alternatively "shepherd") for the development of their skills. If the aircraft is a dual seat type then the mentor will also fly together with the candidate on the first few displays to assess and guide the candidate in the execution of a safe and presentable display.

This mentor shall be a pilot who has had previous military jet/turbine experience and who is already a holder of a jet/turbine aerobatic rating and who has experience on the particular type of aircraft (or an aircraft of similar performance) on which the candidate wishes to obtain a jet/turbine rating. The mentor should possess at least 3,000 hours total time and have previously flown jet/turbine displays. The pilot under supervision will log the flight hours while the supervising pilot will not log the hours if he is not a qualified CAA approved instructor.

The mentor will be required to give a brief verbal assessment and sketch of the candidates' training and general approach to display flying to the Display Authorisation Committee (DAC). This assessment will be given in strictest confidence and will not be in writing. In the event of any dispute between the mentor and his protégé or the mentor and the DAC the dispute will be referred to the ethics committee.

It will be the mentor's responsibility to refer the candidate to psychological evaluation/coaching if he has any doubts with respect to the candidates' mental approach to display flying.

### **6.17 Qualification Check List**

Pilots who are holders of a jet/turbine aerobatic rating are to have the following items available;

- Valid Pilots Licence
- Membership of Aero Club of South Africa
- Sports Aerobatic Club Membership
- Jet/Turbine Rating

### **6.18 Display Authorisation**

Before pilots may display their aircraft at a show or an event, they will in addition to the jet/turbine rating is required to obtain a Display Authorisation from RAASA. Any applicant for the issue of a "Warbird" category display authorisation should satisfy the DAE that he/she;

- Is the holder of a Jet/Turbine Aerobatic Rating
- Is fully conversant with the systems and technical limitations that pertain to that particular type of aircraft.



- Is cognisant and conversant in the looping, rolling and pitching capabilities of the aircraft.
- Is fully conversant with the performance limitations in terms of height and speed required to execute the required manoeuvres.
- Is familiar with the procedures for a successful egress (ejection/bail-out) from the aircraft should this become necessary?

#### 6.19 Lower Level Waiver.

The lower level waiver is established and granted by Aero Club of South Africa appointed Display Authorization Examiners who will council, advise and mentor and observe the candidate's attitude and ability as an aerobatic display pilot. Due cognisance will be taken of the level to which the candidate has progressed within the discipline of display aerobatics.

The DAC reserves the right to issue lower level waivers. Only in exceptional cases will authority be granted by the DAC to a lower level than what is reflected in the jet/turbine rating.

#### 6.20 Formation Aerobatic Displays

Pilots with a Jet/Turbine endorsement **may not** be involved in any aerobatic formation flying displays without prior formalised training in formation aerobatics. The issue of an aerobatic rating is **strictly** for solo displays. Should a pilot wish to participate in any formation conducting aerobatic manoeuvres, this will only be permitted should the candidate have proven experience in high performance formation aerobatics or alternatively have undergone a formalised training and development programme for formation aerobatics.

## 6.21 RECOMMENDED SYLLABUS FOR JET/TURBINE AEROBATIC RATINGS

At present, the SAC does not have a school where jet/turbine aerobatics are formally taught. A candidate wishing to learn jet/turbine aerobatics will need to approach an ATO or SAC approved instructor(s) that teach jet/turbine aerobatics. RAASA has a list of professional aerobatic instructors or approved aerobatic instructors who could be approached for aerobatic instruction on these specific types. It is highly recommended for candidates to adopt a mentor as discussed in Par 9.4 above for the development of his/her skills.

As part of document CAA ARO 002 there is an amended syllabus for jet/turbine aircraft, developed for the SAC, which should be followed. The syllabus below addresses all safety aspects pertaining to aerobatic flight including recovery from unusual attitudes. The initial aerobatic training course will consist of a minimum of six (6) sessions each covering a specific manoeuvre with constant revision of recovery from potentially high risk situations.

This syllabus should cover the basic aerobatic and recovery manoeuvres viz:

- *performance investigation for high performance aircraft*
- *loss of control*
- *auto-rotative manoeuvres*
- *low speed manoeuvring*
- *rolling*
- *looping*
- *turn reversals*
- *inverted flight*

The course should also cover aerobatic notation, sequence construction, energy management and display flying. The overall objective of the initial jet/turbine aerobatic training course is to prepare the candidate to fly a solo, linked sequence of basic manoeuvres.

The issue of a jet/turbine aerobatic rating would depend upon the level of sophistication of the type of aircraft to be displayed.

## 6.22 Training Syllabus

This document cannot be deemed to be entirely prescriptive should certain of the recommended training exercises fall outside of the aircraft's flight envelope. Discretion will be used to determine a satisfactory training regime.

The recommended expanded syllabus for jet/turbine is attached as an appendix to this document.

Operators are urged to submit alternative training programmes to SAC for their specific aircraft types should the recommended manoeuvres fall outside of the operating envelope of the specific aircraft for which a jet/turbine aerobatic rating is sought.

## 6.23 Prescribed Reading Matter

The following reference material and recommended reading is deemed to form part of the training syllabus for jet/turbine aerobatics;

- *"Flight Unlimited"* by Annette Carson & Eric Mueller
- *"Aerobatics"* by Neil Williams
- *"Better Aerobatics"* by Alan Cassidy
- *"Aerospace Physiological Training Program"* by Secretary of the US Air Force.

(A good website for the above can be sourced on

<http://afpubs.hq.af.mil>)

The following book is deemed to be mandatory reading for aspirant jet/turbine aerobatic pilots.

- African Aviation Series book *"Zero Error Margin"* by Des Barker

# Chapter 7

## Business Plan

### 7.1 Constitution

The Sport Aerobatic Club of South Africa is constituted in terms of the Memorandum and Articles of Association of the Aero Club of South Africa, as a Member Association of the Aero Club. It represents the interests of sport aerobatic enthusiasts in South Africa by affiliation to the Federation Aeronautique Internationale (FAI) through the recognised National Aero Club of South Africa. The Sport Aerobatic Club is represented at the International Aerobatics Commission (CIVA), being the sporting commission of the FAI responsible for sport aerobatics.

### 7.2 Nature of Business

The nature of the SAC business includes the following:

#### 7.2.1 Conduct of Contests

Contests are conducted in terms of the club's Regulations at various airfields in South Africa. Contests are held at Club, Regional and National levels.

#### 7.2.2 Management of Membership

The club's activities are restricted to members, who are levied an annual membership fee. Details of the members are maintained by AeCSA by the means of a database management system. Membership cards are issued to all members in good standing. It is a requirement that all members are also AeCSA members in good standing.

#### 7.2.3 Issue & Control of Aerobatic Ratings

The Sport Aerobatic Club of South Africa controls the issuing of aerobatic ratings, based on the assessment of individual pilots, subject to the completion of the relevant training sequence as published by the club and then subsequent performances at contests. The club appoints approved persons and judges. Rating Cards are issued by RAASA on behalf of the SAC to successful pilots.

#### 7.2.4 The club appoints Delegates to represent the interests of local sport aerobatics at International Commissions and Conventions.

## **7.3 Organisation**

### **7.3.1 Management**

The management of the club is executed by way of a committee elected at the annual general meeting, regular meetings of this committee normally on a monthly basis are held.

Officials elected include the following: -

- a) Chairperson - Acts at the Chief Executive Officer and liaises with all interested parties and convenes committee meetings. The Chairperson is automatically a Board Member of AeCSA and is required to attend meetings and represent SAC on AeCSA matters.
- b) Vice Chairperson - Assists the Chairperson with the running of the club and acts as CEO in the absence of the Chairperson.
- c) Treasurer - Attends to the financial management of the club.
- d) Chief Judge - Responsible for the functions as detailed in the SAC Contest Regulations, acts as the Safety Officer at all contests.
- e) CIVA Delegate – Represents SAC & AeCSA at the International Aerobatics Commission (CIVA).
- f) Secretary – Attends to the recording of minutes at meetings, issues notices of Committee meetings, distributes information to the club membership.
- g) Public relations Officer – Liaises with the media with regards to the dissemination of information to interested parties.
- h) Regional Representatives – Representatives are nominated at the AGM as appropriate, to liaise with club members in the appropriate region.

### 7.3.2 Place of Business

Physical Address: Sport Aerobatic Club of South Africa  
C/o Aero Club of South Africa  
Hanger 50  
Hurricane Road  
Rand Airport  
Germiston

Postal Address P O Box 18018  
Rand Airport  
Germiston  
1401

Telephone (011) 082 1100  
E-mail [info@aeroclub.org.za](mailto:info@aeroclub.org.za)  
Website [www.aerobatics.co.za](http://www.aerobatics.co.za)

## 7.4 Marketing and Communications

In view of the membership being spread across all centres of South Africa, the club makes use of the following means of communicating information to it's members:

- a) Telephone
- b) E-mail Messaging
- c) Website postings
- d) Mail shots

## 7.5 Funding

Income is sourced by way of the following means: -

- a) Membership Fees – All members are levied a fee, determined annually by way of budget preparation, approved at the SAC Executive Committee.
- b) Contest Entry Fees – determined for each contest by the SAC Executive Committee, for all participating pilots.
- c) Sponsorships – Sponsorships are sought on an ad-hoc basis, particularly for National Championships and for Teams participating in International Championships.

**7.6 Control of Funds & Investments**

A banking account is maintained at:

First National Bank  
Main Street  
Johannesburg

AeCSA also hold funds on behalf of SAC.

**7.7 Administration**

AeCSA attends to the distribution of invoices for membership fees.  
Maintenance of the books of account is the responsibility of the Treasurer, as well as the disbursement of expenses.

**7.8 Budget**

The Treasurer prepares a detailed budget for each financial year.

## Chapter 8

# Aviation Safety

- 8.1 SACAA currently designates particular authorities to RAASA. One of the authorities delegated is to ensure maintenance and continuous improvement of aviation standards in recreation aviation. AeCSA sections are therefore continuously encouraged to implement aviation safety programmes to comply with the designated authority under RAASA.
- 8.2 Safety programmes are mandatory for Sections approved as AROs and recommended for sections not approved as AROs.
- 8.3 SAC operates strictly within both the local Regulations and the CIVA/FAI Regulations for the conduct of aerobatic contests, both documents clearly set out a strict code for aviation safety.
- 8.4 Enforcement of aviation regulations applicable to aerobatic contests and aerobatic recreational flying will be the responsibility of SAC, as described in the Manual of Procedure of the SAC and this will be employed to ensure continued and improving aviation safety.
- 8.5 In addition the issue of aerobatic ratings is controlled and follows the successful completion of a course of aerobatic instruction as previously agreed with the SACAA. This only allows basic aerobatic manoeuvres to be flown at a safe altitude and results in a provisional aerobatic rating, allowing the holder to appear before a Board of Judges at an SAC Contest to verify the qualification once a 70% average score is achieved for the Graduate Sequence.
- 8.6 Thereafter the aerobatic rating is progressive and dependent on the pilot's proven standard in competitions before a panel of SAC approved Judges, with an average of at least 70% (where three programmes have been flown including an unknown sequence) being required before advancing to the next higher class.

These procedures have served SAC well in its forty year existence and safety has rarely been compromised at SAC competitions or within its aerobatic rating system.



## Chapter 9

# Accountability and enforcement

- 9.1 The Manuals of Procedure of both AeCSA and SAC detail the procedures, which are to be followed by office bearers to ensure that designated authority is not abused.
- 9.2 The Manuals of Procedure of both AeCSA and SAC, detail the responsibility of each office bearer, as required by the Memorandum of Understanding.
- 9.3 The Manuals of Procedure also detail the steps to be taken by all office bearers to ensure that the requirements for accountability are continuously applied.
- 9.4 The Manuals of Procedure of both AeCSA and SAC detail procedures, which are to be followed by office bearers to ensure that the applicable regulations are enforced, as well as the consequences to persons who do not comply with the applicable regulations.
- 9.5 RAASA may withdraw an aerobatic rating in accordance with the procedures as contemplated in the Promotion of Administrative Act (PAJA), if a pilot has operated an aircraft outside of the parameters allowed by the aerobatic rating or the CARS, repeated offences may result in the offender being liable for exclusion from the club. The SAC Executive Committee will exercise this right at it's discretion and in accordance with the AeCSA Code of Ethics.
- 9.6 Any breach of club discipline shall of the recommendation of the SAC Committee be passed over to AeCSA for a disciplinary hearing in accordance to the AeCSA code of ethics.

## **Chapter 10**

# **Legal Responsibility**

- 10.1 Current insurance cover against claims will be maintained by AeCSA. The initial cover will be for R10, 000, 000. The AeCSA Board of Directors will review the value of insurance cover annually.
- 10.2 SAC will carry no additional cover, other than to ensure that any statutory cover required in the CARS is in place for SAC operations.

# Chapter 11

## Regional responsibility

- 11.1 As part of the SADEC community, South Africa plays a role in the Southern African Region. Recreation aviation in the region follows to a certain extent, the developments in South Africa. Isolation in whatever form, from the South African aviation sector inevitably leads to deterioration in the standards of the aviation industry in the country concerned, which elects to minimise contact with South Africa.
- 11.2 AeCSA as the largest and most active Aero Club in the Southern African region is in a position to assist Aero Clubs in other countries in the region, the aviation enthusiasts in countries without National Aero Clubs and the Civil Aviation Authorities in these countries, with knowledge and experience.
- 11.3 AeCSA is in the unique position of being capable of guiding other Aero Clubs and aviation authorities in the region towards similar arrangements.
- 11.4 SAC will assist AeCSA in its regional responsibilities as and when required.

## Chapter 12

# Social and environmental responsibility

AeCSA through its member sections and through membership of various sporting commissions of the FAI is engaged in programmes to: -

- a) Educate the public to improve social acceptance of recreation aviation.
- b) Stimulate technological development to minimise negative effects of recreation aviation activities, both on society and the environment.
- c) Cooperate with local organisations to minimise negative effects of recreation aviation activities, both on society and the environment.
- d) Cooperate with international organisations to minimise pollution of the environment by recreation aviation activities.

## **Chapter 13**

# **Aviation recreation development**

AeCSA through its sections is engaged in programmes to: -

- a) Develop and improve recreation aviation on a continuous basis.
- b) To introduce, educate and involve interested members of all communities in South Africa in aviation recreation.

# Chapter 14

## Aerobatic Performance Zones

### Application for an Aerobatic Box

When applying for an Aerobatic Box, the following procedure will apply:

Only members of the SAC can apply for an Aerobatic Box (Airspace Cylinder).

**Definition:** - A standard aerobatic box is defined as an Airspace cylinder with a 1nm Radius and max altitude of 4000ft AGL Height limit. The exact position of the cylinder will be depicted by a single centre co-ordinate, which will be positioned correctly at a specific airfield or location so as not to conflict with built up areas, existing airspace or sensitive areas.

The applicant must:-

1. Find an appropriate location to perform aerobatics, giving consideration to keeping aerobatic flights clear of built up and noise sensitive areas.
2. The aerobatic box application must specify intended coordinates, show dimensions, the airspace in the area, intended hours of operations and should ideally have a runway / emergency landing area within the box confines.
3. The applicant must consult the local flying fraternity or any other relevant party. Once an agreement has been reached the applicant must obtain a signed written letter of support from the local flying fraternity. The letter must contain the following:
  - a) An email address, and Contact numbers of such local fraternity.
4. Consult the closest air traffic service unit (ATSU) and:
  - a) In the case of a controlled airspace, obtain written approval;
  - b) In the case of an uncontrolled airspace, supply written notification.
5. Submit the application to the SAC committee.
6. Upon receiving such application, the SAC must consider and verify if the area is safe, and whether the applicant contacted the ATNS on the operation of the Aerobatic Box.
7. Once satisfied that all the requirements were fulfilled by the applicant, the SAC must follow internal requirements and procedures to approve the Aerobatic Box.

8. The SAC may place white ground markers at each corner of the box to make it visible to the pilot from the air. The length and width of the box must be 1,000 meters and may be positioned anywhere within the 1nm Radius “Cylinder”.

9. On completion of the above, the SAC shall supply RAASA with relevant details and advise RAASA to take appropriate action to have the Aerobatic Box listed with NASCOM.

10. The SAC has the discretion to remove an Aerobatic box, and would be subject to notification to all members and the relevant authority that has granted permission.

11. Only Members of the SAC with a current aerobatic rating may open an Aerobatic box in line with the flight rules when activating and using an Aerobatic box for any approved purpose.

12. Flight rules to Aerobatic Box usage to be complied with.

## **Rules when using an Aerobatic Box**

### **1) Aerobatic Box at Contests**

- a) Rules as set out for contests in the ARO

### **2) Aerobatic Box for Official Training Camps**

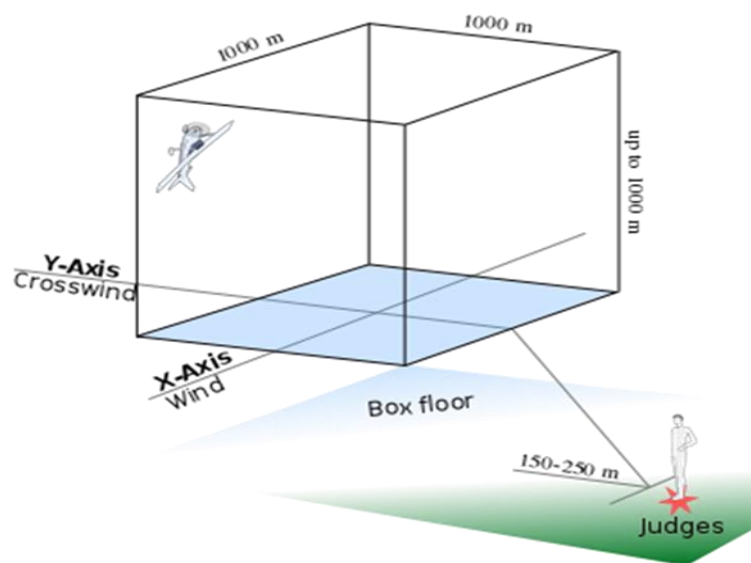
- a) Same Rules as per contest
- b) Open the Box with ATNS (Local)
- c) Monitor the Field frequency for inbound traffic
- d) Close the box on completion

### **3) Aerobatic Box at Unmanned Field (Planned or Unplanned Practice)**

- a) Contact the local ATNS (Radar) to open the Box
- b) If not relevant to the area (Notify - Any SAC Committee Member of Activity)
- c) Notify the Local Community at the field of your intentions
- d) Broadcast your intentions via Radio to inbound traffic & monitor local frequency.

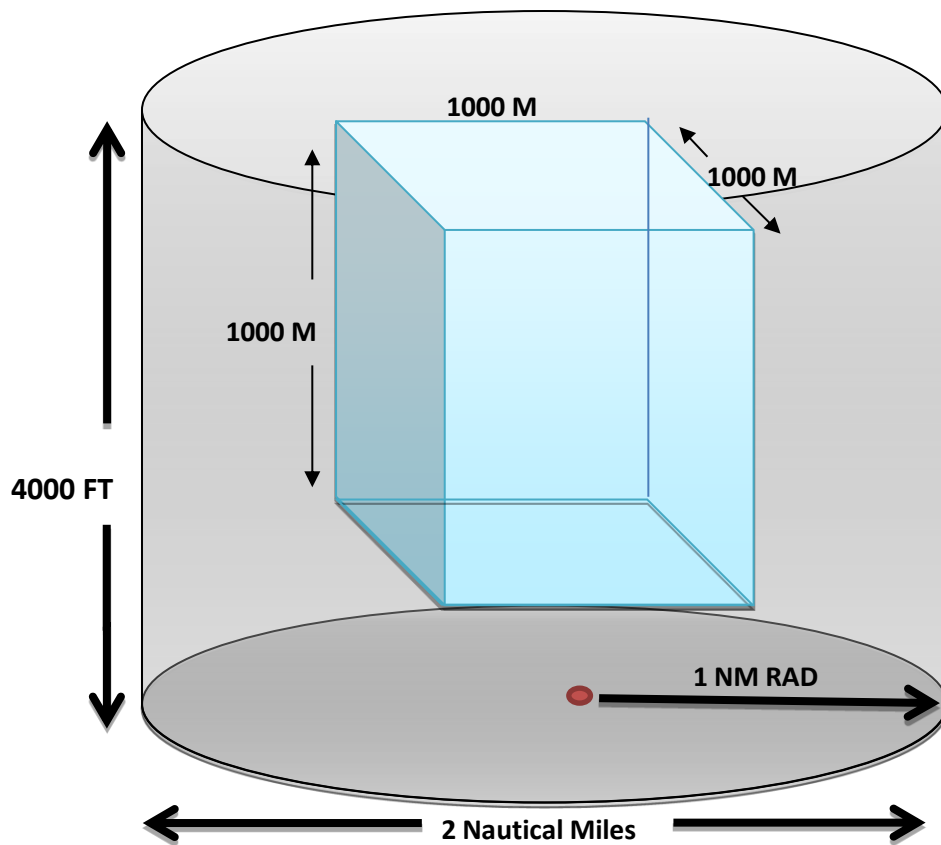
- e) If practicing with 3 or more Pilots – A Training camp to be declared with an SAC Committee member (Note: This is Mandatory if a Committee member is not present)
- f) Close the box on completion.

## Aerobatic Box – Airspace Limits





## Aerobatic Airspace Cylinder



## Chapter 15

# Motivation for approval

- 14.1 SAC has through its members, the knowledge, experience, and human resources through the on-going participation of people in recreational aviation, to administer aerobatics in South Africa effectively and completely.
- 14.2 No other organisation currently exists within South Africa, which can qualify for the approval applied for in this document. The history and composition of SAC is such that the required knowledge, expertise, skills, and experience are in place to effectively take control of aerobatics in South Africa.
- 14.3 Because SAC is by nature a streamlined organisation, which must operate on a minimum budget, and because the members of SAC are participants in aerobatic activities, the natural objective will be to minimise costs as far as is practical. This obviously results in the ability to set up an organisation, which consists of the minimum personnel and facilities to comply with ARO responsibilities, thereby reducing the set-up and operational costs to values, which are absolutely necessary.
- 14.4 There are no other organisations in South Africa, including SACAA, which can combine the cost effectiveness, high standards, productivity, knowledge and experience, which SAC possesses to continue to operate an ARO for aerobatics.
- 14.5 By approving SAC as the on-going ARO for aerobatics, AeCSA entrusts the responsibility of the control of aerobatics to a capable organisation and thus creates a partnership of cooperation and service, which will work constantly towards ensuring the safe and effective operation of aerobatics in South Africa.