

SOUTH AFRICAN



***CIVIL AVIATION
AUTHORITY***

**THE SOUTH AFRICAN SPECIAL AIR EVENTS
HANDBOOK**

SPECIAL AIR EVENTS HANDBOOK

Table of Contents

1. INTRODUCTION	3
2. SCOPE	3
3. PURPOSE	3
4. AUTHORISATION	4
5. RECORD OF AMENDMENTS.....	5
6. LIST OF EFFECTIVE PAGES	6
7. LIST OF DEFINITIONS AND ABBREVIATIONS	7
8. REFERENCE DOCUMENTS	10
9. HANDBOOK GENERAL	10
CHAPTER 1 – GENERAL INFORMATION	12
CHAPTER 2 - LEGAL REQUIREMENTS	21
CHAPTER 3 - SPECIAL AIR EVENT CATEGORIES	24
CHAPTER 4 - PERSONNEL AND PRELIMINARY PLANNING.....	33
CHAPTER 5 - THE FLYING DISPLAY – SITE AND DISPLAY MANAGEMENT	51
CHAPTER 6 - PILOT DISPLAY COMPETENCY	69
CHAPTER 7 - SPORT & RECREATIONAL AVIATION SINGLE DISCIPLINE EVENTS	81
10. APPENDIXES	88
11. CONTINUOUS IMPROVEMENT, MEASUREMENT AND ANALYSIS	88
12. ACKNOWLEDGEMENTS	88

1. INTRODUCTION

This Handbook is one of the documents forming the SAE documentation set.

It is a directive upon all personnel charged with the responsibility for conducting the Administration and approval functions. The SACAA has the authority to approve and oversee airshows and Special Air Events in South Africa.

Special air events, that do not require prior approval shall either submit an applicable events manual to the SACAA for approval and notify the SACAA of such event together with the appropriate conformation letters of compliance as provided for in the handbook.

This Handbook evolved from the early South African airshow Handbook and is updated from time to time to keep pace with changes in the environment of these events.

The latest amendments contained in this Handbook reflects a considered comparison with the rules for similar events Internationally and as developed in the USA, UK and Europe.

The Handbook contains minimum standards and guidelines applicable to special air events, but nothing herein absolves the organiser to abide by all applicable legislation which may bear on these activities, such as the Safety at Sport and Recreational Events Act and the Disaster Management Act

Note (See Chapter 2 for a more comprehensive coverage of this topic).

This Handbook brings together the role players for promoting the success of the event with a focus on the airside.

These include Safety, Flight planning, Air Traffic Control, SACAA, emergency medical services (EMS), SAPS and all other support services.

This Handbook sets out guidelines and minimum standards for the airside and aviation aspects of displays at special air events or Airshows.

It is important to point out that this Handbook does not prescribe the operational aspects or qualifications of persons involved in these services but provides that their services are required at these events.

This Handbook does not apply to the public or spectator side, or non-aviation or non-flying activities that may take place at special air events.

Organisers should take cognisance of the fact that they remain responsible to ensure that all administrative, legislative and safety standards are complied with, and that approvals are obtained from the relevant authorities to plan and host public or spectator events.

2. SCOPE

This Handbook applies to all natural and juristic persons, associations, clubs, body's, organisations, and any of their sponsors that plans to, or intends to apply to host and/or present a special air event in South Africa.

3. PURPOSE




The purpose of this Handbook is to provide minimum standards and guidance to the organisers and sponsors on operations, administration and personnel in the performance of their duties.

It is written to ensure that the minimum safety standards are applied that promote the safe conduct of civil aviation and to enhance the values of the SACAA.

SPECIAL AIR EVENTS HANDBOOK

4. AUTHORISATION

















This handbook is a living document. If, because of development in, or an amendment to the scope and functions of this section, or possibly even developments in the aviation industry that necessitate changes, changes must be made, and this handbook must be amended. Everyone affected by this Handbook is encouraged to propose ideas and changes to this document for the general improvement of both the content and of the professional execution of their duties.

Compiled By	Manager: General Aviation Operations		
Name in Block Letters	Pierre Laubscher		
Signature		Date	24 February 2021
Recommended for Approval by	Senior Manager: General Aviation		
Name in Block Letters	Neil de Lange		
Signature		Date	24 February 2021
Approved by	Executive: Air Safety Operations		
Name in Block Letters	Simon Segwabe		
Signature		Date	24 February 2021

SPECIAL AIR EVENTS HANDBOOK

5. RECORD OF AMENDMENTS

(All amendments to this Manual must be made in accordance with GP002 which contains the Manual Amendment Procedure see GP002c)

Amendment Number	Pages Affected	Date Amended	Approved By:	Signature
01	10-71	01/02/2009	Neil de Lange	
02	8 - 13	03/10/2009	Neil de Lange	
03	37- 38	06/01/2010	Neil de Lange	
04	55 -58	23/02/2010	Neil de Lange	
05	22- 24	18/03/2011	Neil de Lange	
06	28	7/06/2013	Neil de Lange	
07	44-47	11/10/2013	Neil de Lange	
08	14 - 15	16/10/ 2013	Neil de Lange	
09	12, 13, 16,18, 20,25,32, 37,42, 52 and 71	11/02/2014	Neil de Lange	
10	23	03/04/2014	Neil de Lange	
11	11, 15 – 16, 18 – 20, 22, 23 and 25 - 28	30/05/2016	Neil de Lange	
12	30,32,33,35,36,37, 40, 41, 43, 44, 45, 46, 37 34, 35, 36, 39, 40, 42, 43,44, 45, 52, 54, 55, 61, 64, 67, 68, 74	01/06/2016	Neil de Lange	
13	7,8,11,16,18,19,33,34, 37,45, 62	01/02/2017	Neil de Lange	
14	37, 39, 41, 45, 57,58,62, 63, 70, 88, 105, 106	01/08/2018	Neil de Lange	
15	24, 35-40, 45, 49, 55	08/05/2019	Neil de Lange	
15	All	24/02/2021	Simon Segwabe	

6. LIST OF EFFECTIVE PAGES

Revision No.: Original

Column 1				Column 2			
*	PAGE	REVISION	DATED	*	PAGE	REVISION	DATED
e.g.	All	Original Version ^{1st}	01/02/2009		7-8	13 th Revision	01/06/2016
	8-13	2 nd Revision	03/10/2009		11	13 th Revision	01/06/2016
	37-38	3 rd Revision	06/01/2010		16	13 th Revision	01/06/2016
	55-58	4 th Revision	23/02/2010		18	13 th Revision	01/06/2016
	22-24	5 th Revision	18/03/2011		19	13 th Revision	01/06/2016
	28	6 th Revision	7/06/2013		33	13 th Revision	01/06/2016
	44-47	7 th Revision	11/10/2013		34	13 th Revision	01/06/2016
	11-15	8 th Revision	16/10/2013		37	13 th Revision	01/06/2016
	12	9 th Revision	11/02/2014		45	13 th Revision	01/06/2016
	13	9 th Revision	11/02/2014		62	13 th Revision	01/06/2016
	16	9 th Revision	11/02/2014		37	14 th Revision	30/11/2018
	18	9 th Revision	11/02/2014		39	14 th Revision	30/11/2018
	20	9 th Revision	11/02/2014		41	14 th Revision	30/11/2018
	25	9 th Revision	11/02/2014		45	14 th Revision	30/11/2018
	32	9 th Revision	11/02/2014		57-58	14 th Revision	30/11/2018
	37	9 th Revision	11/02/2014		62-63	14 th Revision	30/11/2018
	42	9 th Revision	11/02/2014		70	14 th Revision	30/11/2018
	52	9 th Revision	11/02/2014		88	14 th Revision	30/11/2018
	71	9 th Revision	11/02/2014		105	14 th Revision	30/11/2018
	23	10 th Revision	01/04/2014		106	14 th Revision	30/11/2018
	11	11 th Revision	30/05/2016		24,	15 th Revision	08/05/2019
	15	11 th Revision	30/05/2016		35-40	15 th Revision	08/05/2019
	16	11 th Revision	30/05/2016		45	15 th Revision	08/05/2019
	18-20	11 th Revision	30/05/2016		49	15 th Revision	08/05/2019
	22-23	11 th Revision	30/05/2016		55	15 th Revision	08/05/2020
	25-28	11 th Revision	30/05/2016		All	16 th Revision	24/02/2021
	30-37	12 th Revision	01/06/2016				
	40-46	12 th Revision	01/06/2016				

* Indicates page revised, added or deleted by this revision. Column 2 should be completed only when column 1 is full.

7. LIST OF DEFINITIONS AND ABBREVIATIONS

7.1. Definitions

TERMINOLOGY	DESCRIPTION	
Airshow	Is an approved special air event managed by accredited FDD/FDSO and other accredited officials and pilots with valid display authorisations at an aerodrome, or airfield for the purposes of a public gathering and entertaining the public by means of aerial displays including flat displays, aerobatic displays and formation displays.	
Advisory Flight Information Service	The person or persons approved to conduct a flight information service, and to advise on any conditions relevant to arriving and departing aircraft.	
A Mentorship Development and safety event	is an event for pilots only, for the purpose of development and promotion of aviation safety through sharing and improving knowledge, flying skills and gaining experience, by performing or taking part in flights, flypasts, displays, competitions, races, rallies or spot “accuracy” landing disciplines under the mentorship and direct supervision of approved DAE’s, mentors, instructors and approved safety personnel.	
A Fly-Away	Is an impromptu gathering of planes at an airfield, where pilots fly their aircraft to a particular destination, for the purposes of a social get together as individuals	
A Fly-In	Is a planned event or gathering of planes at an airfield where pilots fly their aircraft to an organised event or destination for the purposes of a social get together as a group, club, association or organisation.	
Air Traffic Control	The person or persons appointed by an approved ATS to control aircraft arrivals, start clearances, departures and to maintain safe separations.	
Airside Marshall	A person or persons as part of the FCC assisting with any matter required by the FDD such as crowd control on the ground and on the airside of a SAE	
A Special Air Event	<ul style="list-style-type: none"> a. Any activity which imposes an increased workload on the pilot in an aircraft in order to participate or compete in any event designed to either entertain or display to a crowd of spectators, or achieve a result which result shall be measured against other pilots or participants in the same event; or b. Any event where any participant, whether solo or as part of a group, flies any sequence designed to have entertainment, competitive or educational value, and participating pilot(s) shall be deemed to be participant(s) at such an event. c. Notwithstanding anything contained elsewhere in this manual, a special air event is any flying activity during which aircraft may not necessarily or be able comply with the normal rules of the air and/or normal air traffic control rules as contained in the SACARS, and which may require consideration of one or more of the following: <ul style="list-style-type: none"> i. the approval of special procedures, operational requirements or standards. ii. the level of an “air traffic service” and applicable airspace to be provided. iii. the establishment or restriction of flying regulations. 	
Aviation Recreation	Means flying microlight, glider, balloon, gyroplane, hang-glider, paraglider, model aircraft, light sport aeroplane, touring motor glider, parachute or involvement in aviation events.	
Crowd Line	The forward edge of the areas intended for spectators or car parks to which the public has access during a Flying Display.	
Display Authorisation	A SACAA issued document detailing the types or groups of aircraft in which a pilot is authorised to display, together with any limitations or specific endorsements.	
SAE Handbook	RE-ISSUE: 24 FEBRUARY 2021	Page 7 of 88

TERMINOLOGY	DESCRIPTION
Display Line	A line defining the closest a display aircraft may fly parallel to or approaching the Crowd Line.
Display Pilot	A pilot who holds a Display Authorisation or Validation, that allows him to take part in a flying display.
Event Organiser or Applicant	<ul style="list-style-type: none"> a. The Organiser of an event. b. The organiser remains the applicant, even if the application is submitted by an agent or nominated persons other than the organiser. c. The event organiser remains the accountable person responsible for all matters related to the event, legal and regulatory compliance, safety and risk to participants, officials and members of the public be they spectators or otherwise.
Flying Control Committee	A committee or group reporting to the FDD to advise and assist with the management, observe and communicate all flying display and airside safety matters to the FDD during the event.
Flight Display Director	A person accredited by ASSA and appointed by the organiser, responsible to manage, implement and oversee all airside aviation activities, displays and safety standards at a special air event, in cooperation with the FCC which includes but is not limited to the FDSO, ATC, EMS, Fire, Airside Marshalls, program director, ramp controller etc.
Flight Display Safety Officer	A person accredited by ASSA appointed by the FDD and responsible for observing all active flying displays and communicating applicable matters to the flying display pilots once the display box has been handed over to the FDSO, as part of the FCC and reporting to the FDD
Flying Display	Any flying activity deliberately performed for the purpose of providing an exhibition or entertainment, at an airfield open to the public, irrespective whether there is a gate charge or not.
Flight Line Aircraft Parking Area	A parking area for aircraft to which the public has no access.
General Aviation Operation	means an aircraft operation other than a commercial air transport, air ambulance or aerial work operation.
Hard Deck	The minimum height determined by the FDD, that any pilot of a display aircraft may fly during and event or display, i.e. All pilots incl zero ft rated pilots will deem the hard deck as zero ft and adjust their approved display heights accordingly
Pleasure Flights	Any passenger flight starting from, or arriving at, the display site purely for the purpose of a Pleasure Flying.
Program Director	A person as part of the FCC reporting to the FDD to manage, monitor and adjust the aviation display program to ensure the efficient and timely continuation of the flying displays.
Ramp Controller	The person as part of the FCC reporting to the Program Director to manage and communicate all matters, including changes, advancements, delays, cancelations and the continuous progress of the flying display program to ensure the timely and correct standby, strap-in and display time slots for all flying display pilots.
Skills Levels for Authorisation of Aerobatic Displays	<p>The skill levels are as defined by the Sport Aerobatic Club of SA, or by an approved ATO or the South African Air Force.</p> <p>The skill levels used on Display Authorisations, are:- Sportsman, Intermediate, Advanced, Unlimited</p> <p>Note: Included are categories for vintage, military, fast jet and aerobatic aircraft.</p>

TERMINOLOGY	DESCRIPTION
Spectator	Any person attending a Flying Display and remaining in the areas set aside for the public.
Static Aircraft Park	Park for aircraft to which the public has access, where there will be no aircraft movements or engines running for the duration of the event.

7.2 Abbreviations

ABBREVIATION	MEANING
AFIS	Advisory Flight Information Service
AIID	Accident and Incident Investigation Department
ATC	Air Traffic Control
ATNS	Air Traffic and Navigation Services
AOC	Air Operator's Certificate
CAMU	Central airspace management unit
CPL	Commercial Pilot License
DA	Display Authorisation
FCC	Flying Control Committee
FDD	Flight Display Director at an airshow
FDSO	Flight Display Safety Officer at an airshow
MTOW	Maximum Take Off Weight
NOTAM	Notice to Airman
PD	Program Director
PPL	Private Pilot License
RC	Ramp Controller
RPAS	Remotely Piloted Aerial System
SAAF	South African Air Force
SACAR	South African Civil Aviation Regulations
SAE	Special air Event
SO	Safety Officer at an event other than an airshow
SM	Senior Manager General Aviation Department
GA Ops	General Aviation Operations
GA	General Aviation
RA	Recreational Aviation
ASSA	Air Show South Africa
SACAA	South African Civil Aviation Authority
UAV	Unmanned Aerial Vehicle

8. REFERENCE DOCUMENTS

- i. Air Show South Africa, airshow manual, dated 3 February 2005
- ii. European Airshow Council, Airshow Manual, dated 24 February 2012.
- iii. International Council of Air Shows, President, John Cudahy, date 11 November 2013
- iv. UK Civil Aviation Authority, CAP403, Flying Displays and Special Events: A Guide to Safety and Administrative Arrangements, dated 29 June 2012 and March 2018.
- v. FAA, ACRP synthesis 41, Conduction Aeronautical Special Events at Airports, transportation Research Board
- vi. UK Civil Aviation Authority, CAP1400 UK civil air display review: final report
- vii. Genl. Des Barker, Zero Error Margin, Airshow Display Flying Analysed

9. HANDBOOK GENERAL

Chapter 1 General Information

- Duties for;
- SACAA,
- ASSA
- Procedures when applying for SAE permit
- Timelines for SAE applications

Chapter 2 Legal Requirements

- Civil Aviation Regulations
- Military event, venues and participation at civilian flying events
- Foreign participation

Chapter 3 Event Categories

- Fly-in
- Category D event
- Category C event
- Category B event
- Category A event
- International event
- Other or irregular events (TBD)

Chapter 4 Personnel and preliminary planning

- Event Organiser
- Appointment of Officials
- Flight Display Director, Flight Display Safety Officer
- Flying Control Committee
- Flight Crew
- Preliminary planning

Chapter 5 The Flying Display – Site and Display Management

- Site Assessment
- Spectator Enclosures, Vehicle Parking and PA system

- Parking and Aircraft manoeuvring
- Flight display line
- Minimum distance from crowd to the display lines
- Minimum distance from crowd line to edge of runway
- Overflight of Spectators
- Setting of minimum heights
- Aircraft Maximum speeds
- Weather Minima
- Use and allocation of Frequencies
- Ground Special Effects & Safety
- Briefing
- Document Checks & Insurance
- Pilot display Programs
- Carriage of persons on board display aircraft
- Display by Air Operator's Certificate holders
- Pleasure Flights
- Helicopter flights
- Marshalls, officials and escorts
- Parachuting as part of display program
- Parachute dropping aircraft and parachutists
- Paragliding and hang-gliding displays
- Manned balloon separation criteria
- Model Aircraft as part of display program
- Model display limitations

Chapter 6 Pilot Display Competency

- General
- DAE, Display Authorisation Examiners
- Display Competency Demonstrations
- Limitations
- Issue of Display Authorisations
- Recency
- Expiry
- Renewal
- Display Criteria
- Formation Flying
- Requirements for the issue of a Display Authorisation

Chapter 7 Single discipline events organised by approved ARO's

- Light aircraft, microlight, gyroplane and glider events
- Hot air balloon events
- Air races, time and navigation rallies and pylon races
- Display parachuting

Appendixes:

CHAPTER 1 – GENERAL INFORMATION

1. Applicability

This document only applies to applications submitted to the SACAA that relates to aviation displays demonstrations and other aerial activities at special air events and pertains to minimum safety standards on the airside at such events.

It remains the responsibility of the organiser to ensure compliance with all administrative and legislative requirements and that safety standards for public events are adhered to.

It remains the responsibility of the organiser to ensure that all applicable approvals are obtained in writing from the various and respective authorities to plan and host public events.

It remains the responsibility of the organiser to apply a duty of care, to ensure adequate and suitable safety personnel and emergency services are physically present for the duration at such events for the benefit of public safety.

1.1 Minimum Standards

- a. This document sets out the minimum standards for safety and administrative procedures to be followed by all event organisers and participants at and during such events on the airside or aviation side of an event.
- b. Information is provided beyond the statutory requirements, so that the experience gained from past displays can be of use to those new to the organisation of such events.
- c. For the same reason, some basic information is included on aviation air shows, air races, rallies, flying displays, helicopter displays, contests or competitions, as well as other or extra-ordinary events, some of which may not be subject to the normal rules governing such aerial activities, provided there is no display element included in the event.

Supplementary information is provided in the Handbook for micro-lighting, gyrocopters, gliding, hang and paragliding, balloon, model aircraft, RPAS (Drones) and parachuting/skydiving displays at and during special air events.

- d. Further information may be found the manuals of approved organisations, clubs, bodies, associations or institutions or operational manuals for discipline specific or irregular events.
- e. Special Air Event Organisers, when making application for a permit to hold a Special Air Event, are required to confirm that the organisation and conduct of the special air event will be in accordance with the provisions of this Handbook, Civil Aviation Regulations and applicable Acts, laws and bylaws.
- f. Whilst nothing in this publication is intended to conflict with the SACARS it is understood that the very definition or purpose of a special air event means that special rules, conditions or operations may apply and take place with due consideration and approval, however in a case of doubt, the relevant Act's, National legislation and SACARS shall be regarded as superior to this Handbook.
- g. The participation and hosting of a special air event carries a lot of responsibility and risk. Planning and mitigating this risk to ensure safety of participants, and arguably most important the safety of spectators and public, irrespective if they are paying or not to gain entrance or observe such activities is of paramount importance. All aspects of such events must therefore be carefully planned, and all activities should be thoroughly considered prior to their taking place.
- h. Any unplanned, impromptu, ad hoc, or unrehearsed display shall not be attempted or permitted.

1.2 Variations

- a. Any variation from the provisions of this Handbook shall only be considered upon formal written application by the organiser/applicant on the prescribed application form.
- b. All relevant supporting material or any additional material required by the SACAA, shall be submitted to the SACAA within the prescribed time limits.
- c. The SACAA may consider and approve such an application once the SACAA is satisfied that adequate mechanisms, plans and processes have been prepared and implemented to adequately manage the intended event or activity for which a variation has been applied for.
- d. Such approval shall be issued in writing and signed by the SACAA Senior Manager.
- e. Where a display or display sequence does not appear on the SAE approval permit Addendum A, such display or display sequence is not approved by the SACAA.

1.3 SACAA and SAE role player duties for Special Air Event applications.

1.3.1 SACAA

- a. The SACAA is the authority for all Civil Aviation matters in South Africa, may
 - i. approve all those special air events including airshows that require an approval permit in South Africa; or
 - ii. issue a letter of no objection to those special air events that have a SACAA approved discipline specific event manual of procedures and that do not require an approval permit in South Africa, having received a notification and statement of compliance to the SACAA from the relevant event organiser, club, association or organisation.
- b. The SACAA may conduct oversight and surveillance of special air events as contemplated in this user manual, Aeronautical Information Circular AIC19.1, AIC 19.2 and SACARs as amended from time to time.
- c. The SACAA shall issue display authorisations and sport aerobatic qualifications for the purposes of performing flying displays at any event as contemplated in this handbook, Aeronautical Information Circular AIC19.1, AIC19.2 and SACARs as amended from time to time.
- d. The SACAA may appoint and oversee the display authorisation committee and display authorisation examiners for the purposes of validating and recommending the issue and renewal of display authorisations and ratings.

1.4 ASSA: Air Show South Africa

- a. ASSA is an independent organisation representing its member's on matters related to Airshows in South Africa.
- b. ASSA will ensure that all airside personnel are trained, mentored, validated and ASSA accredited, i.e. FDD's, FDSO's, marshals, ramp controllers, program directors and organisers at air shows, and are current members in good standing of ASSA.
- c. ASSA shall assist with the promotion and development of Air shows in SA.
- d. ASSA shall support, guide and assist air show organisers with the planning and organising of air shows.
- e. ASSA shall ensure that all airside participants are suitably accommodated and provided for by the organiser.

- f. ASSA shall ensure that the event organiser provides and places emphasis on suitable nutrition, hydration, shelter from the sun and elements, as well as suitable ablutions being available to airshow participants and officials.
- g. ASSA shall plan and develop a training syllabus and mentorship program for all airside officials i.e. FDD's FDSO's, FCC members, program directors, ramp controllers, marshals, and special air event organisers.
- h. ASSA shall ensure that all airside officials as listed above undergo and complete the required training and mentorship and are accredited through the ASSA training and mentorship programs.
- i. Once airside official candidates have completed the approved training and mentorship program, ASSA will accredit such individuals to perform the functions of an FDD, FDSO or other airside official as applicable.
- j. ASSA shall manage and ensure that good conduct and ethics are maintained by all ASSA members, participants, and officials at Air shows.
- k. ASSA will vet and validate all air show organisers, to ensure that the organiser for the event is suitably knowledgeable and experienced to plan and organise such events, and to ensure that the organisers are suitably supported and funded to ensure a successful event, and that all participants and officials are timeously paid as per the agreement between the organiser and such participants and officials.
- l. ASSA may submit on behalf of the applicant FUA applications or notifications as applicable to CAMU for FUA and notify the SACAA if all matters related to airspace for Special Air Events have been complied with.
- m. ASSA may apply on behalf of the applicant for ATC's from ATNS or a suitable service provider at all Special Air Events requiring controlled airspace or AFIS.
- n. ASSA shall promote and ensure that all event organisers have *bona fide* Aviation Transformation and Development programs at events, and that such programs are well managed.

Note: ASSA is not an aviation authority and does NOT Approve Special Air Events

1.5 The Applicant, Organiser and Sponsors

- a. The organiser/applicant shall ensure that a formal application on the prescribed SACAA application form together with all supporting documentation is submitted to the SACAA General Aviation Operations department within the prescribed time frames.
- b. In the case where the organiser or sponsor applying for a special air event approval is a Juristic person, such organiser or sponsor shall appoint a natural person for the purposes of contacting, communicating and correspondence between the applicant and the SACAA.

1.6 Procedures when applying for a Special Air Event Permit

- a. An organiser/applicant must be mindful of the effect and the importance of scheduling the intended event date, special consideration must be given to the availability of display pilots and other participants, i.e. FDD's, ATC's, and any other service providers as it may apply.
- b. Alternate dates should be considered in the case of conflicting or unavailable dates, or unavailable safety personnel or participants due to conflicting events.

- c. The Special Air Event application forms or information can be obtained on the SACAA website.
- d. All Air show applications: the completed application form and supporting documents need to be submitted to SACAA, no less than 150 days prior to an event.
- e. Other Aviation events: Multi Discipline events and for International, National, Provincial or Regional competitions, a formal application together with all SAE supporting documents needs to be submitted to SACAA no less than 150 days prior to an event.
- f. In the case of a person, organisation, club, body, association, institution or an approved ARO that do NOT have a discipline specific special air event manual approved by the SACAA, and that intend on hosting and/or presenting a single discipline special air event; shall submit an application to the SACAA together with the required SAE supporting documentation, no less than 90 days prior to the event, where such events do not require a change in airspace or ATS and if uncontrolled airspace is acceptable for an event or a competition.
- g. In the case of a person, organisation, club, body, association, institution or approved ARO's that DO have a discipline specific special air event manual approved by the SACAA, and that intend on hosting and/or presenting a single discipline special air event in accordance with their approved manual; shall notify the SACAA of their intended event and supply a statement of compliance no less than 30 days prior to the event, where such events do not require a change in airspace or ATS and if uncontrolled airspace is acceptable for an event or a competition.
- h. In the case of a person, organisation, body, club or institution that do NOT have an off-airfield display manual approved by the SACAA and intend on hosting and/or presenting an off-airfield display in terms of AIC 19.2, shall submit an application to the SACAA together with the required SAE supporting documentation no less than 90 days prior to the intended display no less than 30 days prior to the intended display.
- i. In the case of a person, organisation, body, club or institution that DO have an off-airfield display manual approved by the SACAA and intend on hosting and/or presenting an off-airfield display in terms of AIC 19.2 shall notify the SACAA of their intended event and supply a statement of compliance no less than 30 days prior to the intended display.
- j. If an event organiser or sponsor chooses to use ASSA as their agent, then ASSA shall ensure that SACAA receives the application and all supporting documentation within the prescribed 150 days application deadline.

Note: All applicants for any special air event shall be responsible for submitting their own Flexible Use of Airspace applications to CAMU within sufficient and required timeframes.

In the case of a Change to airspace or where the applicant requires ATC, AFIS, it remains the responsibility of the applicant to ensure that they have submitted such application to CAMU prior to the published AIRAC cycles.

Failing to do so will result in an event not being approved

NB: Contact SACAA to confirm the type of Airspace required if Unsure

1.7 Application

- a. All applications for special air event approvals shall be submitted to the SACAA on the prescribed SAE application forms, and within the published time frames.

- b. SACAA shall consider the dates being applied for on receipt of the application forms and advise the applicant of the suitability of the dates for their intended Special Air Event if required.
- c. All further documentation required for airside approvals shall be submitted to SACAA within the prescribed time frames as contained in Chapter 1. 4 Timelines and administrative requirements for SAE applications as contained in this Handbook below.
- d. The applicant shall provide proof to the SACAA that FUA has been granted from CAMU and that all matters related to airspace for Special Air Events have been complied with.
- e. The applicant shall verify if ATC/AFIS from ATNS or a suitable service provider at all Special Air Events requiring controlled airspace has been appointed.
- f. SACAA may approve and issue an Event Permit to the organiser once all administrative requirements have been satisfactorily supplied.
- g. Once the SACAA are satisfied that requirements have been submitted within the prescribed timeframes and are found to be satisfactory and the applicable payment to the SACAA has been confirmed, the SACAA will provide the applicant with a SAE approval permit.
- h. SACAA personnel shall be permitted entry and access to all areas to oversee special air events.
- i. SACAA may take action in the event of transgressions or non-compliances.

Note: All correspondence to and from SACAA related to all SAE or any other Aviation Event shall be submitted to the SACAA general aviation operations to ensure an efficient and continued service from the GA Ops team.

1.8 Timelines and administrative requirements for SAE applications.

- a. The event organiser remains responsible for all compliance to all requirements and submission of an application and all documentation to SACAA.
- b. The event organiser shall ensure that all requirements and documentation are complete, approved and signed by the appropriate person, authority or organisations, and submitted to SACAA within the before or on the day of the prescribed time frames listed below.

1.8.1 160 days prior to SAE.

- a. The event organiser/applicant shall ensure that all applications, notifications and approvals are obtained in writing from all applicable authorities, persons, bodies, departments or agencies as required by the relevant legislation, regulations, bylaws and this manual as applicable to their intended event, and as per the prescribed timeframes when applying to SACAA for an SAE approval.
- b. The event organiser shall request confirmation from ATNS of the availability of SAE ATC's and the suitability of the proposed date for the intended event.
- c. The event organiser shall confirm the suitability of the proposed date for the intended event to avoid conflicting with other intended events.

1.8.2 150 Days prior: SAE Formal Application submitted to SACAA:

- a. The event organiser shall submit and ensure that SACAA has received the completed SAE application forms with the following supporting documentation;
 - i. Local Authority and/or Landowner's signed letter of permission to use the aerodrome, airport or airfield for the intended special air event; or
 - ii. The local authority and/or landowner's signed letter of permission in the case where the flying display is performed where the display area is off airfield, or over a property, beachfront etc other than the airfield where the event is held.
 - iii. A copy of the SAPS SASREA risk categorisation application document.

1.8.3 120 days prior to SAE:

- a. The organiser shall appoint an FDD from a list of ASSAs accredited FDD's, a copy of such written appointment and acceptance by the FDD of such appointment shall be submitted to SACAA.
- b. Written confirmation from the appointed FDD that the airfield or venue can comply with all minimum requirements and distances, from crowd line to active runway and display lines, and that all displays are able to remain clear of built up areas, parking areas and open assemblies of persons.

1.8.4 90 days prior to SAE:

- a. The FDD shall appoint his airside safety team, which shall include a FDSO, Program director, Ramp director and other airside safety personnel as applicable from the ASSA database of accredited persons, and supply SACAA with written confirmation of such appointed personnel.

1.8.4.1 In the case of Non-Airshows or ARO Events Not requiring controlled airspace

- a. Deadline for formal applications of events other than airshows and not requiring controlled airspace, or
- b. Notification of an intended event or competition in the case where an ARO or other organisation or person has obtained and approved manual of procedure from the SACAA for specific discipline type events.

1.8.5 60 days prior to SAE:

- a. Emergency response plan airside (Approved and signed by a Senior person qualified to develop and approve disaster management, emergency response and evacuation plans, and submitted to the organiser)
- b. Event (Public side) Disaster Management and Evacuation Plan, (Approved and signed by a Senior person qualified to develop and approve disaster management, emergency response and evacuation plans, and submitted to the organiser)
- c. All names and contact details of emergency services personnel, JOC; VOC, Fire, Ambulance, SAPS, Traffic, Security, Hospital and other respective safety personnel.
- d. Pre-Event Audit and completed risk/hazard matrix with mitigation actions performed by an approved FDSO or FDD, (Checked, Signed and submitted by the FDD)

- e. Copy of the site plan and layout indicating the crowd line in relation to the runway edge and display line, public areas, built up areas, settlements, car parks etc.
- f. Signed proof of all applicable insurances, including third party and public liability insurance as required in the “Safety at Sports and Recreational Events Act (Act 2, of 2010)”.
- g. A letter from the insurance company for public liability insurance wherein SACAA, ASSA, the FDD, FDSO and all airside officials are documented as a co-insured for the event.
- h. A letter confirming that all aircraft owners/pilots carry the mandatory public liability insurance as required in the Civil Aviation Act.
- i. A detailed airside operational plan; stating at least the following:
 - i. The names of all airside operational personnel, their respective duties and reporting structures; and
 - ii. A detailed chronology of all airside personnel’s and display related functions, duties, activities, checks, inspections, briefings, prior to, during and after the event including the practice, rehearsal, validation days; and
 - iii. the site plan and layout for the event, indicating the position and distances for the airside vs. public side with demarcated crowd line, flight lines for the respective types, size, speed and complexity of the displays and aircraft as required further in this document, and detailing the method of indicating these flight lines on the ground to the display pilots; and
 - iv. First responder/emergency vehicles parking positions and response routes, Airside Safety Tower, housing the ATC, FDD, FDSO, FCC
Public commentator stand/tower if different from the airside safety tower, emergency exits, Display aircraft parking, arriving aircraft parking etc.

Note: Also refer to any applicable legislation for compliance with insurance requirements.

1.8.6 30 days prior to SAE:

- a. All final airside arrangements with supporting documentation need to be completed and updated where applicable and already submitted to SACAA.
- b. Provisional flying display program, (FDD, FDSO and Program Director to check and confirm)
- c. A list of all pilot’s names display routines and aircraft types that will be participating.
- d. A list of all pilot’s names display routines and aircraft types that need to be validated by the FDD/FDSO for flat displays only, or a DAE prior to the show.
- e. Copy of full pilots briefing and safety minima’s and participants indemnity forms, (FDD & FDSO), and that these have been e-mailed to all airside and display flight participants.
- f. All names contact details and duties of the FCC and any other personnel and committee members that will have an active duty or function on the day of the event. (Organiser & FDD)
- g. A signed letter of confirmation from the organiser that all municipal and private emergency services, Fire department, Ambulance, Hospitals, SAPS and Traffic etc, have been alerted and will be available in accordance with the emergency response and evacuation plans, and that all necessary approvals or permits have been

obtained in writing. Including adherence to all applicable legislation, laws, regulations and Municipal by laws. (Organiser)

- h. A final written and detailed airside operations plan if changes have been made (FDD & FDSO)
- i. The operations plan shall include a detailed plan of the crowd line in relation to the airside layout, airside positions for emergency and support personnel, checks and procedures that need to be implemented and adhered to prior to and during the event, including the type and number of radios or other forms of communications, positions of all marshals, airside personnel positions and permitted areas.
- j. Flight Display Directors or Flight Display Safety Officers may allocate pre-determined times and coordinate with ATC's for all arrivals and departures on application, no other times will then be accommodated if the air show program does not permit these delays.
- k. The air show program will take preference over GA arrivals and departures, except in the case of prior arrangements or emergencies.

1.8.7 14 Days prior to SAE:

- a. Final written confirmation from the organiser that all safety standards, arrangements, and that participants and AAQ programs are complete and finalized.
- b. Signed confirmation and acceptance forms returned to SACAA (Organiser)
- c. Signed copies of all indemnity forms for airside participants and display pilots.
- d. SACAA may issue a Special Air Event permit if all administrative requirements and payments have been satisfactorily completed and submitted within the prescribed timeframes.
- e. Proof of payment to the SACAA of the applicable fee for the SAE approval and oversight as per the SACAA's invoice.

NOTE TO ORGANISERS:

Where documents or administrative requirements cannot be supplied or adhered to in time due to delays beyond their control and within the prescribed time limits. The organiser shall provide SACAA with a written statement prior to the applicable deadline, outlining the cause for the delay, and how the matter has been addressed to ensure the process of finalisation.

SACAA in turn will acknowledge the written statement and may require an alternate deadline. Failing this or failing to reach any of the above or alternate deadlines will result in a cancelation of the application and SACAA will be unable to approve the SAE permit.

1.9 Post Event Requirements

1.9.1 Debrief

- a. The FDD, FDSO and FCC as well as other event officials shall perform a debrief within five days after the event, unless the same FDD and FDSO officiate at an event the next week. This may be conducted in person, by telephone or by e-mail with all participants and the organising committee.

1.9.2 Post Event report

- a. Once the debrief is completed the FDD and FDSO shall compile a consolidated post event report and submit this directly to SACAA no later than fourteen days after completion of the event.

Notes:

- a. SACAA may at any time during the above stated timeline request confirmation of any additional information
- b. SACAA shall be advised of a cancelation of an event ASAP.

NB: If any of the conditions above have not been satisfactorily adhered to within the required timeframe or sufficient reasons for any delays supplied in writing to SACAA within a reasonable time, the event permit may be declined, and the event removed from the calendar.

CHAPTER 2 - LEGAL REQUIREMENTS

1. Legislation and Regulations

- a. The event organiser/applicant and their sponsors remain the accountable person(s) responsible for all matters during and related to the event, to ensure legal, regulatory and safety compliance, and to put into place and apply effective safety and risk management measures, to protect participants, officials and members of the public be they spectators or otherwise.
- b. It remains the responsibility of the event organiser, property owner, their sponsors and their agents to familiarise themselves and comply with all applicable legislation not limited to but including.
 - i. Any regional or local bylaws incidental to the planning and organizing of an event.
 - ii. Civil Aviation Act (Act 13, of 2009) As well as the Regulations issued in terms thereof;
 - iii. Disaster Management Act (Act 57, of 2002)
 - iv. Explosives Act (Act 15, of 2003)
 - v. Fire Brigade Services Act (Act 99, of 1987)
 - vi. Liquor Act (Act 59, of 2003)
 - vii. Occupational Health and Safety Act (Act 85, of 1993)
 - viii. SA-CARS and CATS
 - ix. Safety at Sports and Recreational Events Act (Act 2, of 2010)
 - x. South African Police Service Act (Act 68, of 1995)
 - xi. The contents of this SAE Handbook.

2. Rules

- a. Where an event or flying display is at any venue open to the public, this places the responsibility on the event organiser, their sponsors and the participating pilots to ensure that all minimum safety standards and emergency response plans are adhered too.
- b. For such an event, the event organiser must obtain a SAE permit in writing from SACAA.
- c. All Pilots performing displays must hold a valid display authorisation (DA).
- d. Before an approval can be considered, SACAA must be satisfied that the organiser, FDD and FDSO are accredited and fit and proper persons for this role, having regard in particular for their previous conduct and experience, their administration, organisation, staffing and other arrangements to effectively manage and oversee a special air event.
- e. SACAA may consider such a person to be fit and proper if a written recommendation has been submitted to SACAA by ASSA confirming the role, privileges, and limitations that the person is accredited for.
- f. In deciding if an application for approval should be made for a Special Air Event permit, organisers should note that the “accessible to the public” requirement is the principle requirement for complying with the “*Safety at Sports and Recreational Events Act (SASREA Act 2, of 2010)*” rather than relying on a “Fly-in” or “Free entry” element. Or limiting entry to “members of a club or organisation” such members, their friends and family remain members of the public.

- g. Different conditions may apply to discipline specific events such as balloon and parachute events, these are covered separately in Chapter 7.
- h. A Special Air Event may have its own special rules, accordingly aerobatic competitions, races, rallies, contests, competitions, fly-ins and airshows whether part of a flying display or not, may vary from certain requirements of the SACAR's.
- i. Where the public has access to the site, or be in close proximity to the event, the organiser shall comply with requirements relating to public safety, particularly in relation to minimum separation distances between aircraft whether in flight or on the ground to the public, as well as restricted access to the active or airside.
- j. distances between aircraft whether in flight or on the ground to the public, as well as restricted access to the active or airside.

2.1 MILITARY EVENTS, VENUES AND MILITARY PARTICIPATION IN CIVIL FLYING DISPLAYS

- a. Military rules require civilian display pilots flying at military displays to hold a DA or DA Exemption as evidence of display competence and limitations.
- b. Participation by civilian pilots in military displays will be subject to compliance with display limits approved by the military authority.
- c. Before any military aircraft may participate in a civil flying display its participation must be approved by the South African Air Force (SAAF).
- d. In the case of SAAF military aircraft, it can therefore be reasonably assumed that the required approval has been given by the SAAF when the display aircraft is allocated to the Flying Display.
- e. When military aircraft participate at Civilian airshow the flight line and any minima determined by the FDD shall apply, unless specifically exempted in writing by the SAAF or SACAA.

2.2 FOREIGN PARTICIPATION

2.2.1 Foreign Civil Participants from Countries Operating a DA System similar to or better than the one in South Africa.

- a. Certain countries have issued DA's or similar approvals to their display pilots.
- b. DA's issued by other countries may be validated by approved DAE's and the DAC for pilots participating in displays in SA.
- c. The limitations imposed on pilots holding a DA or equivalent issued in another country whilst displaying in SA, shall be the higher of the limits specified in the pilot's DA or the limits imposed by the DAE or FDD.
- d. Pilots from other countries shall hold a SA DA provided they have met all the requirements as specified in Chapter 6 and have been recommended to SACAA by a SA DAE or been exempted in writing from the above by the SACAA.
- e. The limitations of the SA DA will apply to Flying Displays flown in South Africa only.

2.2.2 Foreign Civil Participation from non-ICAO Countries or Countries without a DA system



Department / Division: Air Safety Operations

Document Owner: General Aviation Operations

Name of Document:

SPECIAL AIR EVENTS HANDBOOK

- a. A foreign civil licensed pilot from non-ICAO countries or countries without a DA system wishing to take part in Flying Display permission is required to hold a SA DA.
- b. Where a foreign qualification equivalent to a DA is held, the SACAA may decide to accept it as confirmation of competence in considering the issue of a SA DA or an exemption from the SACAA.
- c. Further details may be obtained from the SACAA ASO General Aviation Operations Department.
- d. The above requirement does not exempt the holder of a foreign pilot's license to first obtain a foreign pilots license validation as the SACARS from the SACAA.

CHAPTER 3 - SPECIAL AIR EVENT CATEGORIES

1. General.

Due to diversity of aviation and the South African special air event circuit in terms of the number of participating aircraft and people expected, the following categorisation of aviation events is used:

2. Categories or Types of Special Air Events

2.1 Fly-in or Fly-away.

Note: Whilst a Fly-in or Fly-away does not need prior approval or an SAE permit from the SACAA, providing that the event complies with the definitions and limitations set out below, this manual provides some guidelines and clarity on organising and hosting a fly-in or fly away.

2.1.1 Definition

- a. A Fly-Away is an impromptu gathering of planes at an airfield, where pilots fly their aircraft to a particular destination, for the purposes of a social get together as individuals.
- b. A Fly-In is a planned event or gathering of planes at an airfield where pilots fly their aircraft to an organised event or destination for the purposes of a social get together as a group, club, association or organisation.
- c. A fly-in or a fly-away is a group of pilots irrespective of the size or number of aircraft where each pilot operates their respective and individual aircraft by exercising the privileges and limitations of their pilot licenses and in compliance with the SACARS and rules of the air individually, and not as a group, formation or cluster of aircraft.
- d. Each individual may depart from the same or different airfields and arrive separately or at similar times, and shall remain solely responsible for their own safety, communications, actions, separations and decisions during all phases of flight.

2.1.2 Limitations

- a. A fly-in or fly away is not for the purposes of performing flying displays, demonstrations, fly pasts, flying competitions or any other aerial activity intended to entertain the public or a group of spectators or compete against other aircraft and/or pilots flying their aircraft, and
- b. A fly-in or fly away is not for the purposes a public event or gathering irrespective if they are paying to gain entrance or not, and
- c. Flypasts, demonstrations or flying displays or flying competitions in level flight or aerobatic manoeuvres are not permitted.
- d. After landing, aircraft are shut down until departure.
- e. On departure aircraft shall expedite their departure and are not permitted to perform flypasts, demonstrations or flying displays.

2.1.3 Exceptions

- a. Flying displays or flypasts performed by the holder of an Air Service License and valid AOC for flying displays and/or Aerobatic displays as approved by the SACAA.
- b. All such AOC holders shall apply for their own FUA from CAMU and shall obtain approval for a display in accordance with their approved AOC Opspec in writing from the SACAA prior to performing such displays.

2.1.4 Approval

- a. A fly-in does not require a special air event approval permit from the SACAA, providing the event does not contain any of the activities of a special air event or airshow as contemplated in this manual, AIC 19.1 or AIC 19.2.
- b. The organiser of a fly-in remains responsible for compliance with all legislative and regulatory matters including all person's safety at such an event, further, to ensure proper diligence and a duty of care is applied.
- c. The organiser shall appoint a suitable person or persons as their safety officer(s).
- d. All flying arrivals and departures at a fly-in shall be conducted in compliance with the SACARS.
- e. The organiser of a Fly-in or Fly away shall notify the SACAA no less than 14 days prior to a planned event.
- f. The organiser of a Fly-in or Fly away shall apply for a NOTAM in order to alert other airspace users of the extent, time and duration of intended event and increased activity.
- g. If AFIS is required, the organiser shall notify CAMU for FUA and apply to ATNS or another approved air traffic services provider to provide suitably rated persons to provide AFIS.

NB: If more than one AOC holder is performing a display at a particular fly-in, fly away or other public gathering, the event shall be considered to be a special air event and shall comply with the requirements of this manual for approval, unless written approval from the SACAA ASO General Aviation department has been obtained in writing.

The holder of an AOC together with the Organiser of the event shall remain responsible for all items required by the AOC, and ensure that all legislation, regulatory and safety requirements have been implemented and complied with.

2.2 Aviation Mentorship and Development and Safety Events:

2.2.1 Applicability

Aviation SAE Mentorship, Development or Safety Events shall apply to any person, group, club, association, organisation or approved ARO(s) intending to organise and present an aviation event other than a Fly-in, Approved Competition or Approved Airshow to;

- a. their members or a group of pilots, for the purposes of
- b. Promoting, developing and improving aviation safety, knowledge, airmanship and flying skills to other pilots, or
- c. Promoting aviation and aviation careers to a group of persons.

2.2.2 Application

The organiser/applicant is required to submit an application together with a manual of procedures (Handbook) detailing the planned activities of their intended event, no less than 90 days prior to the intended event.

The Handbook shall include the scale and scope of the intended event together with the following supporting documents:

- a. Event audit of the site and its suitability for the intended activities together with a risk matrix and mitigating plans
- b. Airside event program
- c. Airside operational plan
- d. Event layout
- e. Emergency response plan
- f. Evacuation plan
- g. List of emergency services and personnel
- h. Safety personnel
- i. Local authority and/or landowner's permission letters
- j. SAPS/SASRIA documents if applicable
- k. Letters of insurance.

Once satisfied that all regulatory and safety requirements have been addressed, SACAA may approve the event Handbook.

If an event Handbook has been approved, the applicant may conduct their event in accordance with the provisions of the approved event Handbook and shall notify SACAA of such event(s) no less than 30 days prior to event.

2.2.3 Definition

- a. A special air, mentorship or safety event for pilots only, for the development and promotion of aviation safety through sharing and improving knowledge, flying skills and gaining experience, by performing or taking part in flights, flypasts, displays, competitions, races, rallies or spot "accuracy" landing disciplines under the mentorship and direct supervision of approved DAE's, mentors, instructors and approved safety personnel.
- b. These may be section or discipline specific events and are organised by clubs, associations, organisations or approved ARO's in accordance with an approved manual.

2.2.4 Limitations

- a. A category D event is not for the purposes of a public gathering or entertaining the public by means of flypasts or flying displays in level flight or aerobatic manoeuvres, irrespective of whether persons entering are paying for entry or not.
- b. Where pilots who are current members of the ARO, aviation club or organisation bring along a family member or friend, they accept and assume all responsibility for that person, and ensuring that they have been adequately briefed and informed of the dangers and risks of aircraft and flying events.

2.2.5 Exceptions

- a. Flying displays or flypasts performed by the holder of an AOC for flying displays and/or aerobatic displays as approved by the SACAA.
 All such AOC holders shall apply for their own FUA from CAMU and shall obtain approval for displays in accordance with their AOC Opspec in writing from the SACAA prior to performing such displays.
- b. Aerobatic sequences flown by members of the Sports Aerobatic Club with the appropriate ratings and approved by the SAC, as a SAC sanctioned event or competition.

2.2.6 Approvals

- a. Approval shall be obtained from SACAA.
- b. Where an approved ARO, club or organisation is planning to hold an event in accordance with an approved event or competition Handbook, the SACAA shall be notified in writing no less than 30 days prior to the event, together with written confirmation that all requirements have been adhered to in accordance with their approved event manual of procedures, or this Handbook as applicable.
- c. Where any regulatory or safety standard or requirements has not been provided to or accepted by the SACAA, SACAA would be unable to approve the event.

2.3 Air shows

2.3.1 Definition:

An airshow is an approved special air event managed by accredited FDD/FDSO and other accredited officials and pilots with valid display authorisations at an aerodrome, or airfield for the purposes of a public gathering and entertaining the public by means of aerial displays including flat displays, aerobatic displays and formation displays.

2.3.2 Timelines for applications and approvals:

NB! All airshow organisers/applicants are required to refer and adhere to the timeline requirements in Chapter 1 point 4.

2.4 Small Airshow: or Class C Special Air Event

2.4.1 Minimum requirements and limitations

- a. This category is allocated to an event that consists of no more than ten (**10**) individual display slots.
- b. A formal application needs to be submitted to the SACAA No less than 150 days in advance.
- c. Uncontrolled airspace with AFIS may be considered upon receipt of a formal application, or controlled airspace may be preferred subject ATC availability and the size and complexity of the intended event and displays.
- d. Limited types of flying displays are permitted by suitably rated display pilots for the purposes of entertaining the public.
- e. Controlled airspace is preferred if aerobatic displays are included.
- f. A clear and solid barrier needs to be in place between the public/crowd line and the active airside of such an event.
- g. This category of event requires an FDD, with at least one FDSO who may be part of a mentoring program if recommended by ASSA.

2.5 Medium Airshow or Class B Event

2.5.1 Minimum requirements and limitations

- a. This category is allocated to an event that consists of **11-19** individual acts.
- b. A formal application needs to be submitted to SACAA no less than 150 days in advance,
- c. controlled airspace is preferred, and ATC availability confirmed.

- d. Most types of flying displays are permitted by suitably rated display pilots for the purposes of entertaining the public.
- e. A distinct barrier needs to be in place between the public/crowd line and the active airside of such an event.
- f. This category event requires an FDD and two FDSO's of which one may be part of a mentoring program if recommended by ASSA.

2.6 Large Airshow: or Class A Event

2.6.1 Minimum requirements and limitations

- a. This category is allocated to an event that consists of **20** or more individual acts.
- b. A formal application needs to be submitted to the SACAA no less than 150 days in advance,
- c. Controlled airspace is preferred, and ATC availability confirmed.
- d. All types of flying displays are permitted by suitably rated display pilots for the purposes of entertaining the public.
- e. A clear and solid barrier needs to be in place between the public/crowd line and the active airside of such an event.
- f. In the case of a Military Event all procedures will be under the Handbook's and regulations of the Military.
- g. In the case of large commercial or airline aircraft, prior approval needs to be obtained from the respective SACAA Part 127, 135 or Part 121 department managers.
- h. This category event requires an FDD and at least three FDSO's of which two may be part of a mentoring program, as well as a Ramp controller and Chief Marshal as part of the FCC.

2.7 International Airshow

- a. Same as Class A Event, this is an event held with international participants, and will be evaluated and approved on an individual basis.

2.8 Competitions, Races and Rallies.

- a. Unless an event is single discipline specific, organised and managed by an approved ARO in accordance with the standards and procedures approved in their event Handbook, any other event that is not an airshow, at a gathering on or off an airfield, by a group of pilots, including but not limited to competitions, races, rallies, accuracy landing, navigation, displays, or to compete against another pilot or pilots, such events shall all be considered to be at least a Category D Special Air Event, and adhere to all the administrative, safety and approval requirements as determined for such an event.
- b. If SACAA deems the event equivalent to, or higher than a category C special air event, the organiser shall ensure administrative and safety requirements for that category of event are adhered to.

2.9 Off-Airfield Fly-Pasts, Display Flights, Missing Man Formation Flights and Demonstration Flights (See AIC 19.2)

2.9.1 Applicability.

- a. This section applies to the approval of flypasts, missing man formation flights, display flights and demonstration flights that take place away from and off-airfield other than those provided for in AIC19.1
- b. The SACAA may consider an application for an off-airfield aviation event on a case by case basis.

2.9.2 Application requirements:

- a. Completed application form, and
- b. Local Authority or Landowners' letter of permission for the intended flying operation, and
- c. Letter of request from the event organiser and/or sponsor for the intended flying operation, and
- d. In the case of;
 - i. flat fly past or flying display(s) sequence, provide a copy of a valid pilot's display authorisation, or a flat display flight validation performed by an approved DAE or an accredited FDD, or
 - ii. aerobatic display(s), provide a copy of a valid pilot's aerobatic display authorisation, or
 - iii. missing man formation(s), a copy of each pilot's formation rating, or a formation validation for each pilot performed by an approved DAE.
- e. A detailed operational plan, and Map(s) of the area depicting:
 - i. Airspace.
 - ii. Route including take off area, holding area, run in and departure area and landing area with estimated times
 - iii. Fly-past or display area with minimum distances from public, built up and spectator areas
 - iv. Location, position in relation to display line and size of spectator area
 - v. High risk and no nuisance areas to be avoided i.e. overhead houses, places of worship, hospitals etc.
 - vi. Holding area.
 - vii. Run in direction and height limits during the various phases of the fly-past or display flight(s) in relation to the public and/or spectator area.
 - viii. Type of flight(s) and display sequence(s) if applicable
 - ix. Any further information as may be required for the safe operation of the flight
- f. Name and contact details of the appointed safety officer.
- g. How the display area will be kept free of traffic i.e. AFIS or alternate as applicable.
- h. How will ground communication be achieved and who will be communicating with pilots informing of any important information from the ground?
- i. Height limitations
- j. Plan to brief emergency personnel on your aircraft in case of an emergency etc.
- k. Timeline(s) for the event i.e. what time emergency personnel will be briefed etc. and are they suitably equipped to attend to an aviation/aircraft emergency, what time is the display set to commence.
- l. Emergency/alternate landing areas?
- m. Emergency plan with emergency services are available in the case of an emergency

- n. The applicant shall notify the CAMU for FUA and apply for a NOTAM and supply a copy thereof to the SACAA.
- o. Proof of public liability insurance for the event.
- p. SACAA may request any additional documentation or information as may be required to consider such an application.

NB: Organiser and pilots to consider SACAR requirements when planning the intended flights, SACAR Part 91.

2.9.3 Timelines:

- a. The aircraft operator or appointed organiser/applicant shall apply on the prescribed application form no later than 60 days prior to the intended event, together with the following;
- b. An aircraft operator(s) with a manual of procedures for off-airfield displays and/or aerobatic displays approved by the SACAA, shall submit an application to the SACAA no later than 30 days prior to the intended event, together with all required supporting documentation

NB: Applicant to check airspace requirements and AIRC cycle is applicable prior to application

3. Extra-Ordinary Events

3.1 Applicability:

- a. This section applies to the approval of extra-ordinary aerial activities not provided for elsewhere in this manual or in the SACARS and CATS.
- b. This shall further apply to special flight sequences for film or television productions, stunts, displays, aerial ab-sailing, aerial bungee jumps, fast roping, skydiving, paraglider d-bag jumps and aerial activities other than regular sport, recreational and demonstration jumps, under-sling operations, formation flights, wing walking or adventure/extreme activities.
- c. These events shall include but not be limited to extra-ordinary events for the purpose aerial practice sessions, special testing and rehearsing of new or unusual flight sequences and maneuvers for airshows, displays or stunts.

3.2 Application requirements with timelines:

- a. SACAA may consider an application for other or irregular event on a case by case basis.
- b. The applicant shall submit an application on the prescribed application form no less than 30 days prior to event, or
- c. In the case that a change of airspace is required no less than 90 days and prior to the next applicable AIRAC cycle.

- d. The applicant shall supply the SACAA with the following documentation.
- i. Application form
 - ii. Local Authority or Landowners' letter of permission
 - iii. Approval/ request from organiser and/or sponsor
 - iv. Copy of valid pilots' licenses and applicable ratings
 - v. Copy of pilot display authorisation, if displaying for a crowd of spectators.
 - vi. A letter from the insurance for public liability and other applicable insurance.
 - vii. Operational plan or SOP which includes, but not limited to:
- e. Map(s) of area depicting:
- f. Airspace consideration.
- g. Route including take off area, holding areas and landing area with estimated times
- h. Operational area with minimum distances from assemblies of persons, built up areas and spectator areas if applicable. Location, position and size in relation to operational area and assemblies of persons and built up areas
- i. Nuisance and hazardous areas to be avoided i.e. overhead houses etc.
- j. Holding area
- k. Run in direction
- l. Any further information required for the safe operation of the flight
- i. Name and contact details of the appointed safety officer(s).
 - ii. How the operational area will be kept sterile i.e. AFIS or alternate as applicable.
 - iii. How will ground communication be achieved and who will be communicating with pilots informing of any important information from the ground?
 - iv. Height limitations? Considering the CARS and CATS, especially CAR 91.06.32
Plan to brief emergency personnel regarding the use of your aircraft i.e. how to unlatch/egress your aircraft in case of an emergency etc.
 - v. What are the timelines of events i.e. what time emergency personnel will be briefed etc. and ensure they are suitably equipped to attend to an aviation/aircraft emergency, what time is the operation set to commence.
 - vi. Emergency/alternate landing areas?
 - vii. Emergency plan with emergency services are available in the case of an emergency
 - viii. The applicant shall notify the CAMU for FUA if applicable, and apply for a NOTAM, a copy shall be supplied to the SACAA.
- m. SACAA may request any additional documentation or information as may be required to consider such an application.
- n. The SACAA may request meeting(s) with the applicant and relevant role players to discuss, review and consider the application together with the operational and safety plans prior to approval.



Department / Division: Air Safety Operations

Document Owner: General Aviation Operations

Name of Document:

SPECIAL AIR EVENTS HANDBOOK

- o. Such meetings shall be scheduled in advance to allow for enough time to plan, arrange and implement any requirements, standards or processes as deemed necessary for the safe conduct of the intended operations.

CHAPTER 4 - PERSONNEL AND PRELIMINARY PLANNING

1. The Event Organiser/Applicant Duties

- a. Where an Event Organiser/Applicant is a juristic person, a natural person shall be appointed in writing as proxy and a letter detailing such appointment supplied to SACAA. The organiser and sponsors accept the overall accountability, responsibility, risk and liability to ensure compliance with all legal and safety requirements at an event.
- b. The person appointed on behalf of an organisation, body, committee or sponsor of the event shall be deemed to be the corresponding contact on behalf of the organisation, body, committee, sponsor of the event.
- c. The organiser remains responsible for all matters of the event, to ensure legal and regulatory compliance, to put into place and apply effective safety and risk management measures, to protect participants, officials and members of the public be they spectators or otherwise.
- d. The organiser has the responsibility to ensure all applicable approvals from the various and respective authorities have been obtained in writing, and to appoint suitable personnel, emergency services and other service providers to ensure compliance with legislation and regulations, safety, planning, administration and notification of particular aspects should only be allocated to people with the appropriate knowledge and experience.
- e. Appoint a team or committee in two parts, to fulfil specific planning, functions and control.
 - i. Airside and flight display active areas (SACAA only approves airside aviation related matters only); and
 - ii. Public and spectator areas,

Note: The event organiser shall ensure that no person, object, activity or anything else on the public/spectator side shall present a risk or hazard to any person, object activity or anything else on the airside or aerial activities for the duration of the event.

1.1 Event Organiser/Applicant

- a. To apply for and obtain written approval for the planned event in advance from the;
 - i. South African Police Services, and
 - ii. Local Authorities, and
 - iii. Emergency services, and
 - iv. Landowners,

1.2 Event Secretary/Administrator

- a. Shall be responsible to ensure that all administrative requirements and documentation is adhered to, communicated and disseminated to all relevant parties as per the applicable timeframes.

1.3 Public and spectator areas coordinator (*All non-airside or flying display planning and activities*)

- a. Ensure compliance to all applicable legislation, regulations and safety standards related to public events.

- b. Liaise with vendors, food & beverage providers, and suppliers of toilets, dustbins, entrance/gate staff as well as security, parking marshals, emergency services, cleaners, general media & photographers etc.
- c. Obtain all required legal documentation and approvals such as liquor licenses, entertainment for kids, food stalls, standing and seated areas for the public, signage for parking, entry and exit points, emergency exit routes, public liability/indemnity statements, any other legal or safety requirement on the public side.

1.4 Spectator and Public areas Safety Officer. (All public safety and security matters)

- a. Plan and ensure compliance with all matters related to public and spectator health and safety, and that the event is held in accordance with the Safety at Sports and Recreational Events Act, 2010, Health and Safety Act, local authorities' bylaws and any other applicable legislation or regulations relevant to such an event, and that an approved and signed disaster management, emergency response and evacuation plan is in place.
- b. Engineering certificates for any structures erected on the site.
- c. Ensure approval and obtain certificates of compliance for electricity, water, gas, occupational health and safety etc. from appropriately rated organisations and/or authorities.
- d. Sufficient and applicable insurance covers are obtained.
- e. Apply to, notify, or negotiate with all relevant parties to arrange within the required time frames, for
 - i. Municipal approval,
 - ii. SAPS, event risk categorisation (SASRIA),
 - iii. Traffic police or Metro police as applicable to manage and control traffic,
 - iv. Fire Departments or private firefighting services,
 - v. Ambulances with advanced life support at the airfield,
 - vi. Hospitals and local Doctors and see if they are able and willing to assist in the event of emergencies,
 - vii. Meet with airside FDD/FDSO, VOC/JOC and other emergency responders;
 - viii. Disaster management and other emergency services to plan develop and approve emergency response, disaster management and evacuation plans.
 - ix. Applications and approvals from any other applicable authority or controlling body for activities or events other than flying displays.

NB: This is a separate responsibility from the ASSA accredited FDD and FDSO who is responsible for flying displays and airside safety.

1.5 Treasurer/finance

- a. Manage financial matters, plan budgets, ensure that there are sufficient funds, funding or sponsors to cover the expenses prior to applying for an event permit. (Relying on Gate/Entry fees is normally not sufficient for such an event).
- b. Ensure event insurance in case of poor weather or another unforeseen occurrence.

1.6 Marketing, Promotions and Sale

- a. To liaise with publications, newspapers, local businesses and shopping centres, schools, public adverts, produce and distribute, flyers, posters, e-mails, develop website, blogs and social media campaigns, advertise on aviation forums.
- b. Market and sell advertising and static display stands to aviation organisations local businesses and general exhibitors.
- c. Market and actively seek sponsors.
- d. Develop, promote and ensure a proper T&D program has been prepared and implemented during the event.
- e. Invite VIP's, Dignitaries and Special guests and ensure proper protocols are observed.
- f. Plan and implement a *bona fide* transformation and development program for aviation awareness and development.

1.7 PRO and Sponsorships

- a. Liaise with ASSA for accreditation and potential sponsors, approach sponsors other than those from ASSA, meet and plan with marketing, promotions and sales, to include sponsors logo's and branding on flyers, posters and adverts.
- b. Plan and coordinate programs for any special activities such as dinners and award ceremonies the evening before or after the event, liaise with celebrity guests and entertainers.
- c. Arrange for interviews with newspapers, TV, local radio stations.
- d. Plan and invite previously disadvantaged persons and children from the local communities as part of the events aviation awareness and Transformation and Development campaign.
- e. Plan a proper transformation and development program.

1.8 Head of Security or Security Company

- a. As per the organiser, safety officers, and SAP arrangements and security plans.

2. Airside and Aviation related duties for Airside event approval.

2.1 Airside and Flight Display/Co-ordinator and/or Program Director

- a. The event organiser shall submit a formal application form and required documents as per the prescribed timeframes to SACAA.
- b. Flying display coordinator/program director to contact and liaise with the FDD, FDSO, FCC, ramp controller, display pilots, skydivers, and all other participants, or persons to attend and perform displays. And to ensure that all standards are adhered to as per the SAE Handbook and instructed by the FDD. The airside co-ordinator may also be the appointed FDD.
- c. To provide a clear and solid demarcation/barrier or fencing between the airside and public side with the correct distances as to ensure that the public is not able to gain access to the airside.

- d. Provide demarcated areas for static aircraft and arriving aircraft that may want to depart during the day, no public may enter or approach the area for arriving and departing aircraft.
- e. Ensure that a suitable tower is erected or provided with the appropriate engineer's report as applicable for the FDD, FDSO, ATC, in cooperation with the FCC, which is elevated above the crowd with a full view of the runway, taxiways, AC parking, and flight line.
- f. In the case where an airfield is unable to comply with the minimum distances from the crowd line to the runway edge, the organiser shall apply for approval from the SACAA on the prescribed form, for deviation from the minimum requirements contained in this Handbook together with a detailed plan for a suitable fixed barrier, together with an engineer's report on the suitability and proper erection of the structure to be provided to ensure spectator and public safety.

NB: The event organiser shall ensure that the airside co-ordinator is accredited and has the appropriate experience and knowledge in this regard and that Airside matters in particular safety and regulatory issues are always adhered to.

2.2 Appointment of officials

- a. The event organiser shall ensure that suitable personnel be appointed and must be detailed to supervise the parking of aircraft, motor vehicles, structures, and able to operate a public address system if required, and to manage messengers or other personnel as may be required.
- b. Enough marshals must be available, either from the police, private security or within the airshow community, to control members of the public, to ensure that emergency vehicle access is kept clear, to be available in the case of emergency and to prevent public access beyond the crowd line.
- c. It is generally possible to find persons competent to undertake such duties from among the membership of a flying club or other suitable aviation organisation.
- d. At a large Special Air Event, only persons experienced in flight line ground handling of aircraft should be used in the aircraft movement area.
- e. All officials must be thoroughly briefed in the duties expected of them and provided with some means of identification, such as armbands.

2.3 Chief Marshal

- i. The FDD shall appoint a Chief Marshal together with enough team of marshals to adequately observe and manager the airside.
- ii. The Chief Marshal shall provide and/or train enough marshals to manage and maintain spectator separation from the airside and aircraft, and that discipline is always maintained on the airside, and to ensure that no unauthorized persons enter the airside or approaches any aircraft.
- iii. To ensure that all airside accredited or authorised personnel wear reflective vests and/or display an airside accreditation card as issued by SACAA before being permitted on the airside.

NB: Special precaution and attention by the organiser and marshals need to be paid to children, as they are not aware of the risks of turning propellers and moving aircraft or vehicles

2.4 The Flight Display Director (FDD)

- a. The Event Organiser shall appoint the FDD from a database of ASSA accredited persons and take into consideration the geographic proximity and level of experience of the appointees in relation to the size and complexity of the event.
- b. The FDD shall furnish reports to SACAA.
- c. The FDD is the person appointed to command, control and oversee all flight displays and airside related safety matters in co-operation with the FCC at a special air event and promote the safe conduct of all airside and aerial activities.
- d. It therefore follows that the FDD must be suitably knowledgeable and experienced to manage the size and complexity of the flying displays, and matters relating to flying in general including flying displays.
- e. The FDD is responsible for observing flying discipline, the approval of individual display routines, and oversight of all flying activities.
- f. The FDD has the authority to set higher limits than the minima specified in the display permission, either individually, if he has reason to believe an individual pilot requires greater safety margins, or generally, if he believes that the whole flying display should be flown to a higher or further minimum.
- g. This may be done in consultation with participating pilots and/or DAEs if so required, however the FDD has the final word.
- h. At Category A & B events, it is required that a separate Program Director is nominated to manage and communicate the flying program. He must be approved by the FDD and have been an understudy as program director during at least 3 Category A or B events.
- i. The FDD at Special air events may not take part in any flying display or other role such as event organiser etc.
- j. A participating pilot(s) may not act in any other capacity such as an FDD, or event organiser on the day of the event.
- k. A participating pilot may however assist with the compilation of a program or assist the program director therewith.
- l. It is essential that the FDD has adequate communications with the FDSO, FCC and all appropriate personnel and the display participants throughout all flying displays.

:

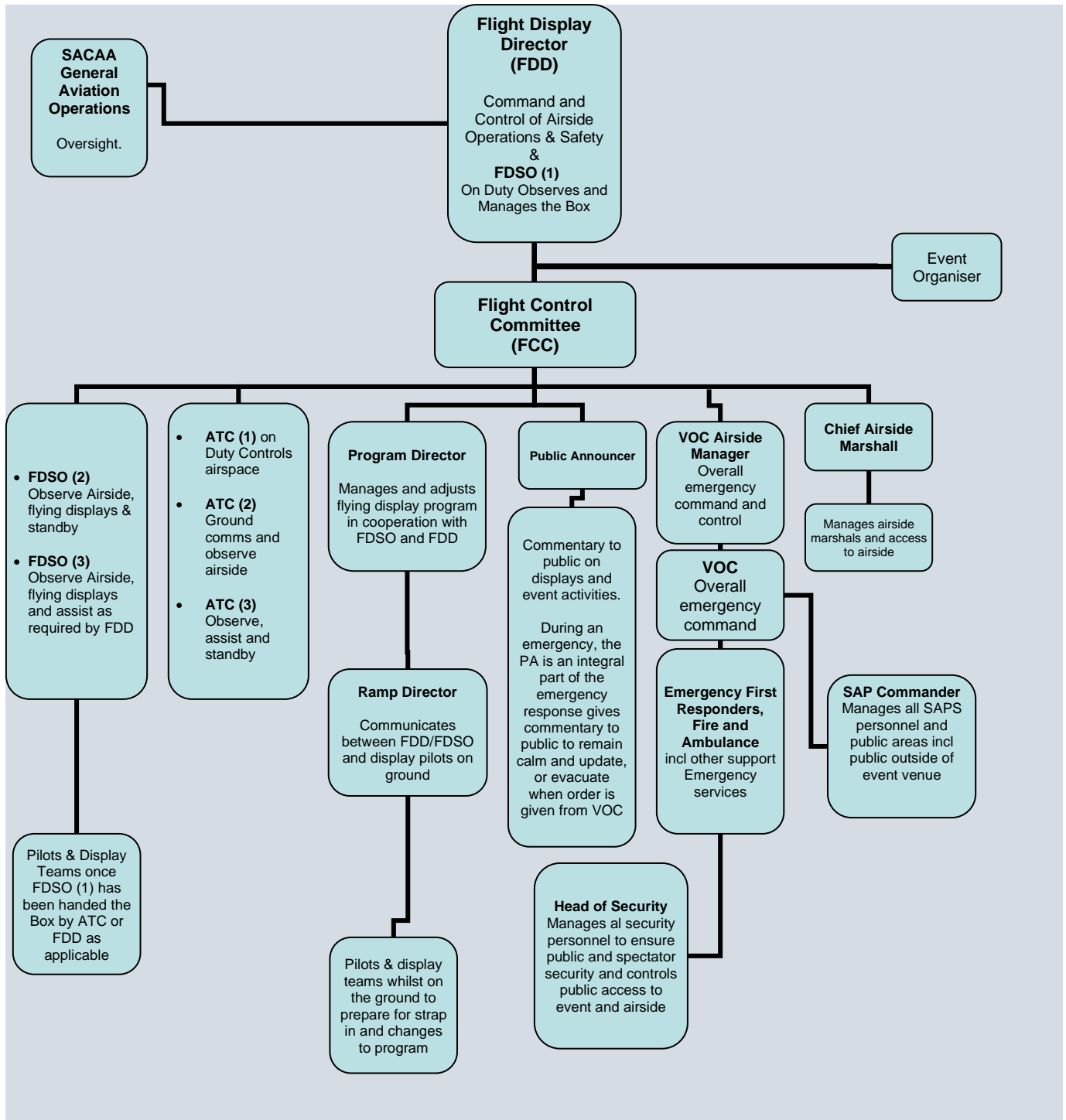


Figure 1: Example of a typical officials and hierarchy of the airside

2.5 FDD duties prior to the Event.

- a. The FDD shall meet with the organisers and if applicable the airside coordinator/committee to discuss the scope of the planned event, displays and airside activities; it is the FDD's duty to advise the organiser of the minimum requirements, safety standards and administrative requirements and timelines well in advance.
- b. The FDD shall prepare an airside operational plan with a detailed checklist (i.e. project manage) to monitor the progress of the airside preparations.
- c. The FDD shall conduct a physical pre-event audit and complete the SAE audit form, this is a physical visit to the airfield and meeting with the organizing committee to discuss all relevant issues as per the audit form.
- d. The FDD perform the audit or shall appoint an approved FDSO or FDSO's to do so on his behalf, the FDD shall approve and sign the audit document and review the audit when next physically present at the venue.

NB: This is not a duplicate of the previous year's audit form and shall be a new physical inspection and audit as there may be changes at the airfield from the previous event.

- a. Conduct timeous meetings with the relevant emergency services, to discuss the scope and complexity of air events, and possible emergencies or disasters in order to compile a disaster management and evacuation plan. Discuss the best positioning of the first and second responders in relation to the runway, flight line and display area. Prepare and discuss the hazards unique in aviation such as Avgas, Jet A1, smoke oil, Ejector seats, Magnesium components on aircraft, Pyrotechnics etc.
- b. Ensure that the airside emergency response and evacuation plan is developed, approved and signed by the senior manager from Disaster Management, or as applicable.
- c. Discuss and plan with the emergency services and organiser where the VOC will be positioned in relation the FDD/ATC tower and the activation procedures.
- d. Assist the organiser with a suitable ground plan and layout of all airside activities and operations, and to ensure that all minimum distances from the public side/crowd line to the nearest runway edge, flight/display line, refuel areas, taxiways, jet or prop blast areas, and any other areas that may pose a hazard to persons or property.
- e. Prepare or assist with a provisional program in conjunction with the Program Director and organiser.
- f. Ensure that all required airside administration and supporting documents are submitted to SACAA by the applicable responsible person within the required periods.
- g. Plan a safety briefing for pilots and airside participants and all marshals, crew and airside personnel.
- h. Validate all airside crew prior to the event and ensure that they have or are issued with appropriate reflective vests.
- i. Brief and observe all airside emergency responders and perform rehearsal drills, to ensure that the first responder can reach and activate their emergency procedures on the airfield within a reasonable time, in particular in the event of an aircraft fire. Verify and ensure that the teams that will be on duty on the day or days of the event, are the same teams performing the rehearsal drills as most emergency service providers alternate teams during shifts.
- j. Ensure that all emergency responders are briefed on the various aircraft for entry and egress. Explain seatbelt mechanisms, cockpit canopy latches as well as relevant information that may affect safety such as ejection seats, pyrotechnics, and explosive bolts etc. Discuss and clarify different methods of extinguishing aircraft/aviation-

based fires as aircraft may have magnesium components and flammable liquids, and where critical areas such as fuel tanks are located etc.

- k. The FDD may perform once-off display validations at least one day prior to the day of the airshow for flat flight displays in the case where a pilot's DA has lapsed, or does not hold a valid DA, and only within the category of aircraft that the FDD is rated on (i.e. FDD with fixed wing may validate fixed wing, helicopter may validate helicopter).
- l. In the case that an FDD has approved temporary validation for flat display flights, the FDD shall record on the approved program the name and details of the pilot, the aircraft and the outcome of the validation as well as the display sequence flown, which shall form part of the post event report.
- m. Obtain a copy of each display pilot/teams display routines in writing, or with the appropriate diagram or arresti sequence if applicable. Ensure that the FDD, FDSO, ATC and other applicable safety personnel understand and can read arresti sequences.
- n. Ensure that the sequence can be read and understood by each FDD/FDSO and ATC.

Note: Temporary validations are for the purpose of a once off flat display validation only and may not be validated a second time. In case that a pilot wishes to fly a display sequence at any other airshow than the one where they were already validated by the FDD, such pilots shall undergo a full display authorisation accreditation with a display authorisation examiner and be issued with a DA by the SACAA.

2.6 Flight Display Director Duties during the Event

- a. The FDD and/or ATC shall start his duties early on the day of the event with a final inspection of the airfield, runway, services and facilities to determine and observe if anything critical has changed since the pre-event audit and that all requirements are in order for the event to take place.
- b. The FDD shall ensure that all emergency services are at their post on time and in the correct positions. This is followed with a safety briefing by the FDD/FDSO or their appointed official(s) with all relevant emergency crews prior to starting with any air displays.
- c. The FDD shall determine the day's conditions i.e. weather, wind direction and speeds, temp & humidity, density altitudes, visibility, and other factors that may affect display pilots and aircraft on the day. With consideration for density altitude and towards crowd line winds that may cause displays to drift towards spectators.
- d. The FDD shall brief all relevant matters with the FDSO, ATC/AFIS, FCC, program director and ramp controller.
- e. The FDD together with the FDSO shall finalize details for Safety briefing by including any new information as determined, as well as the day's minimums.
- f. The FDD together with the FDSO shall ensure that each participant completes an attendance register and signs an indemnity form, with contact details and e-mails prior to the briefing. In the case of a team, each member of the team shall sign an indemnity form as one person cannot sign an indemnity on behalf of another. NO INDEMNITY NO PARTICIPATION
- g. The FDD shall conduct a Pilot Safety Briefing with all relevant parties i.e. Display pilots including Skydivers, Paragliders, ATC/AFIS, Organiser, Public commentator, Emergency services, and Marshalls, i.e. all parties performing a function related to airside activities including cars, bikes, cheerleaders or other acts etc.

- h. The FDD shall observe and manage all flying displays at all times in close support and cooperation with the FDSO.
- i. The FDD shall establish a clear system of two-way communications with all members of the FCC, i.e. ATC, FDSO, program director, ramp controller, VOC, public commentator etc.

NB: *If time does not allow for ATC/AFIS and Public commentators, Marshalls, and emergency services to attend briefing then this should be done prior to the event or pilots briefing. A separate person may be appointed by the FDD to perform such a briefing, providing the FDD held a briefing with the appointee on these matters*

NB: Any late arrivals that have not made prior arrangements, attended a briefing or have not had their validations done on the day prior to the event may not take part in the event, the FDD shall ensure that such late requests do not place him or her under any duress or to make decisions that they would normally not permit.

- j. In the case of an aviation/flight display accident or incident, the FDD shall maintain his position to observe the situation in order to communicate, co-ordinate and update the information to the relevant persons or organisations as required i.e.
 - i. FDD or FDSO or ATC in control of the box or airside at the time – activates the crash alarm for first responders to react.
 - ii. VOC coordinates emergency response, Fire and Ambulance, and informs the SAPS
 - iii. ATC – Controls and coordinates airspace and airborne aircraft
 - iv. VOC assumes control and command and coordinates emergency, rescue and evacuation procedures. Emergency services other than first responders remain on standby and wait for further instructions from VOC.
 - v. FDSO- shall remain at his post after handing the display box back to ATC and assist the FDD, ATC and VOC with communications and duties as delegated by FDD.
 - vi. Public announcer – Shall remain at their post whilst calmly informing spectators to remain calm and not panic, run etc. The PA shall follow instructions from the VOC and/or FDD to make further announcements or calmly follow evacuation routes.
 - vii. SAPS – Manages crowd control and security and helps with evacuation
 - viii. Hospitals – standby as instructed by VOC
 - ix. Airside marshals – maintains calm and ensure no persons enter the airside
 - x. Accident investigations department, once notified advised FDD of actions,
 - xi. Security – maintains security and crowd control and helps with evacuation when required
 - xii. SACAA, if present standby to assist FDD if required
 - xiii. Other members of the FCC including program director, ramp controller, chief marshals shall remain at their posts and follow instructions as directed by the FDD.
 - xiv. Media, in particular photographers to remain clear of any incident or accident, and maintain a professional attitude, media is not permitted to access airside or approach accidents,
- k. The FDD shall also ensure that the crash site is contained and protected by the security and/or SAPS once the emergency services have completed any fire and rescue duties.
- l. The decision if the show should continue after an accident or not.
 - i. The FDD and FDSO will have the final decision if a show should continue or not.

- ii. Discussions and consideration should be given to the ATC's and emergency responders or representatives.
- iii. The FDD and FDSO will meet with the FDC, and with the display pilots, or the display pilot's nominated representative prior to the final decision.

2.7 FDD Duties Post Event.

- a. Once the air displays that formed part of the official program have ended and been called to a close by the FDD's, the FDD/FDSO and FCC's airside duty ends.
- b. The FDD shall conduct a post event briefing with the FCC, participants and organiser. This briefing may be done in person or by other means i.e. e-mail, conference call or any other acceptable method of communication.
- c. The FDD shall compile and submit a post event report directly to the SACAA GA operations section within five working days following the event.
- d. All incidents, accidents, safety or regulatory occurrences and violations shall be addressed by the FDD and reported in writing to the SACAA operations manager during the next working day.

3. FDD accreditation Booklet (Example)

<p>ACCREDITED - FLIGHT DISPLAY DIRECTOR -</p> <div style="text-align: center; border: 1px solid black; width: 150px; height: 100px; margin: 20px auto;"> <p>Place Photo Here</p> </div> <p>Name: Peter Mc Safety</p> <p>ID no: 123456789007</p> <p>FDD No: 9876</p> <p>Telephone no: 011-123 0007</p>	<p>The Flight Display Director shall be accredited by ASSA or similarly by a recognised and appropriate organisation.</p> <p>All non-compliances, incidents or irregularities shall be reported ASAP, and included in the post event report.</p> <p>Safety is non-negotiable and a critical criterion, managing the airside of a Special Air Event on the airside is the function of the appointed officials.</p> <p>Only authorised and approved participants (on the ground and in the air) shall participate in any Airshow activity or gain access to the airside if so approved by the FDD.</p> <p>By signing this document all FDD's agree to abide by the ASSA code of conduct and subject themselves to its Ethics and Disciplinary code.</p>
<p>_____</p> <p>Issued By</p>	<p>_____</p> <p>Flight Display Director</p>

SPECIAL AIR EVENTS HANDBOOK

<p><u>- PRIVILEGES & LIMITATIONS -</u></p> <p>The FDD</p> <p>Shall be permitted to have access to all areas of a Special Air Event in South Africa. Shall determine the times when a Special Air Event Starts and Finishes during daylight hours and in accordance with the provisions of permit. Shall ensure that all participants are briefed prior to the start of an event.</p> <p>Shall be entitled to suspend or cancel a Special Air Event on reasonable grounds or in the event of a Safety or Security risk.</p> <p>May request assistance from a SACAA official or the SAPS in the event of non-compliances, safety or security concerns.</p> <p>May request assistance from the SAP in the event of disorderly, non-compliant or dangerous conduct from any participant or member of the public.</p> <p>Shall not permit any member of the public or participants to interfere with or influence the FDD, FDSO or ATC in the performance of their duties.</p> <p>Shall ensure that the Control tower remains clear of and with no access or interference of any unauthorised persons</p> <p>Shall not leave his or her post unless replaced by another suitable FDD or FDSO</p> <p>.</p>	<p><u>Emergency Response</u></p> <p>The FDD</p> <p>Shall inform the VOC & FCC immediately in the event of an incident or accident.</p> <p>Shall not, nor allow any person to interfere or attempt to interfere with the VOC, FCC or ATC and Emergency services in the Performance of their duties.</p> <p>The first priority at any incident or accident site is to preserve life and/or prevent any further injury or death</p> <p>Only a doctor or coroner may declare a person deceased.</p> <p>In the case of a fatality the scene or accident site is a crime scene and only the SAP shall remain in charge of the site.</p> <p>Only the SAPS may order or instruct a body or bodies of the deceased to be removed from the scene.</p> <p>Once all injured persons and/or bodies have been removed and no further rescue work is being carried out the site shall be guarded with a perimeter by the SAP or other Emergency services until, an appointed Air Accident investigator is in charge of the site, and only persons permitted by the accident investigator may enter the site.</p> <p>If applicable the accident investigator or SACAA may order the FDD or FDSO that the plane may be removed from the accident scene or site.</p> <p>The FDD shall make the final decision to continue or cancel the airshow, unless the permit is withdrawn by SACAA.</p>

4. Flight Display Safety Officer (FDSO) duties and responsibilities.

- a. The FDSO is the person(s) appointed by the FDD to observe all flying displays, once the display box has been formally handed over to the FDSO by the ATC, and the FDSO has confirmed the hand over verbally to the ATC.
- b. The FDSO on duty may not participate in a flying display, unless planned and agreed with by the FDD and providing there is at least one other approved FDSO to manage the display box following a formal hand over procedure not less than 30 min prior to vacating his post, the same procedure will apply when handing the box back.
- c. All airshow FDD's shall ensure that at least one or more FDSO is appointed to assist the FDD in various safety and supporting roles.
- d. At special air events, all second and third FDSO's shall assist and report to the FDD.
- e. A suitable second FDSO may relieve the primary FDSO in managing the box for a specified period in order to take comfort or lunch breaks following a formal hand over procedure not less than 15 min prior to the FDSO in duty vacating his post, the same will apply when handing the box back.
- f. The FDSO shall cooperate with and support the FDD and FCC to manage and control the airside and flying display activities of an event, i.e.

4.1 Flying Control Committee (FCC)

- a. A Flying Display Committee (FCC) must be utilised at all events, to support and assist the FDD; with
 - i. the assessment of submitted display routines or profiles; and
 - ii. in monitoring all display standards and safety margins; and
 - iii. providing specialist knowledge for specific display routines; and
 - iv. offering in depth knowledge in the case if infringement of the safety standards and regulations.
- b. The FCC should be available throughout the period of the Flying Displays.
- c. The FCC should assess all items for breach of the display regulations, passing their comments to the FDD for appropriate action.
- d. At least one member (Marshall) of the FCC should be positioned on the crowd line, with direct communication to the FDD whilst flying is in progress.
- e. At least one member of the FCC should hold a current DA or be a nominated display buddy as per the display pilot's buddy system.

4.2 Emergency Control Centre as part of FCC

Part of the FCC's planning for events must include a Venue Operations Command/Centre (VOC) that will control the logistics and liaise with the FDD and Event Organiser for the show, and where applicable an Emergency Control Centre (ECC) the role of which is the following:

- a. Assisting the FDD to manage any emergencies and communications.
- b. Liaising with the emergency services in the area on all matters related to possible emergencies.

- c. Assist the FDD to develop a checklist of possible occurrences, with names and contact numbers in such an event.
- d. Ensure that all personnel have a list of the relevant names and contact numbers, i.e. FDD, FDSO, ATNS, CAA, Accident Investigators, SAPS, Ambulance, Fire Department, Hospitals, VOC/JOC personnel, Organiser etc.
- e. Identify and clear emergency routes with assistance from SAPS, traffic, Marshalls, security to all possible areas that may need to be reached in an emergency.
- f. Assist with co-ordination of the safety and crash plan with the FDD, ATC, FDSO, VOC and emergency services.

NB: The VOC and ECC must be manned at all times during the event. (The VOC and ECC could be the same persons depending on the venue, number of personnel etc.)

4.3 Airspace and ATNS/ATC duties

- a. Where possible it is advisable that all air shows have controlled airspace (Class D) with suitably experienced ATC's to ensure that proper control can be maintained.
- b. The airshow ATC's form part of the FCC and support the FDD and are in control of all airspace related matters.
- c. Once an air show has started and an ATC instructs arriving pilots to remain clear of the airspace or on the ground, this is a legal instruction and not a suggestion, the same applies for aircraft wanting to perform an impromptu fly past/display or request early departure.
- d. The ATC on duty shall hand over the display box (display area) prior to the start of a flying display to the FDSO through a clear pre-arranged method of communication, and the FDSO shall in turn hand the box back to the ATC through the same system of communication. Each shall read back to acknowledge control of the box to confirm that the other has heard and understood.
- e. The airspace needs to remain sterile once an air show or display starts and until it is complete.

NB: AFIS may not be sufficient for air shows as AFIS cannot control, issue instructions and maintain sterile airspace.

- a. Due to limited ATC personnel approved for air shows and special air events, a limited number of air shows or special air events will have ATC provided, should your event application not be submitted on time to allocate personnel your event will not be able to be approved.
- b. A proper protocol for communication needs to be agreed upon, briefed and followed for communications between the FDD, FDSO and the ATC at events to have a clear understanding of the others operational requirements and duties and to ensure that no confusion and/or conflict exists.
- c. Should the FDD and/or FDSO need to communicate with Pilots who are not complying with any minimums as determined by the FDD, these need to be communicated by the FDSO on the Box frequency if the display is in the box, or through the ATC where the FDSO does not have control of the box without interfering or disrupting the others duties or as briefed prior to the event.
- d. It is essential that a separate briefing is held between the FDD, FDSO and ATC prior to the start of the air show or event to clarify the minimums and standards as well as the FDD, FDSO expectations from the FCC to manage a safe event.
- e. The ATC performs a supporting role at an air show to the FDD and needs to clearly understand the safety minimums, whilst still being allowed to perform their duties in controlling the airspace around the airshow, air

traffic not in the display box once handed over to the FDSO be they in or out bound and on the ground, and maintaining separations for arrivals and departures.

- f. The FDD or FDSO may communicate with aircraft in the display box, and if in possession of a valid restricted or general radio license during their display or validation providing the FDD does not issue any ATC instructions such as cleared for take-off or cleared to land. Any RT from the FDD or FDSO to the display pilots or team should be kept to a minimum and essential communications only or as briefed prior to the event.
- g. A clear understanding should be achieved between each role player's Expertise vs. their Responsibility, i.e. the ATC is the expert in controlling air traffic, giving clearances for take-offs and landings and maintaining safe separations for arriving and departing aircraft, etc. and this is their responsibility,
- h. It is the FDD and FDSO's expertise to observe and ensure that flying display in the display box once handed over by the ATC performs according to their display authorisations, limitations and routines and that aircraft maintain the minimum heights and distances from spectator and public areas.
- i. Should the need arise for the FDSO to inform a pilot performing a display in the box that they are infringing on these safe minima's they may communicate information to the display pilot or team, (THE BOX IS YOURS CONTINUE AT YOUR DISCRETION), on completion of a display (CALL ATC NEXT or CALL 120.20 NEXT). To cancel a display sequence (ABORT DISPLAY) or (REMAIN CLEAR), to fly higher (STEP UP) or fly further away from crowd line (STEP BACK) it is the FDSO's responsibility to take action and communicate directly, or if required through the ATC where the FDSO does not have the box, and for the pilots to act accordingly.
- j. Should the pilots not respond as per the FDSO's request or requirements to adhere to minimums for the benefit of safety, the display or event may be suspended by the FDD until the situation has been resolved, during a suspended period the ATC may permit regular arrivals or departures, but no flying displays may take place.
- k. After it has been announced that the event is completed, the ATC remains on duty as per the NOTAM or AIP supplement to ensure that all pilots that depart, adhere and comply with regulations and general safety procedures until all departures are complete and/or the ATC has reported on air that the tower is closed and *unmanned* procedures will now apply.
- l. The ATC may request the closure of the NOTAM from the NOTAM office if the airfield has become quite or an event is cancelled due to bad weather.
- m. Any safety violations should be addressed by the FDD and reported to SACAA GA operations section on the next working day.

5. Flight Crew

- a. Any civilian pilot taking part in a Special Air Event must possess a current and valid DA.
- b. Details of the DA system, validity of DA's and DA Requirements can be found in Chapter 6.
- c. Additional information may be sought from the SACAA GA Operations section.
- d. Exemptions from the need to hold a DA may be considered by SACAA on receipt of a written application only.
- e. This is an advantage to Air Operator's Certificate (AOC) operators (large transport aircraft, police, medical and S & R helicopters, etc.) where the display given is a role demonstration or simple flypast.
- f. Before a DA Exemption can be considered, a detailed description of the display and demonstrated to an approved DAE at least one week prior to the airshow, and the DAC's recommendation submitted to the SACAA.
- g. Military display pilots are approved and authorised as specified by the SAAF. FDD's should note, however military pilots are subject to the limitations imposed within the flying display areas when they appear at a civilian airshows.

- h. In practice, this rarely causes difficulty because the limits set down in by the SAAF are generally at least the same, or higher, than those imposed in this Handbook.
- i. The only conflict that may arise is on an off-airfield site where special considerations have led to the imposition of a higher than usual minimum display limitations in the Permission.
- j. A participating civilian pilot must hold a valid flight crew licence, which entitles him to fly the type of aircraft that is to be displayed.
- k. An aircraft with a MTWA not exceeding 5700kg may be flown by a PPL holder, or by a professional pilot exercising the private privileges of the licence, provided the licence holder remains current as contained in their logbook, or Test for the relevant aircraft Groups A and/or B.
- l. For an aircraft in excess of 5700kg MTOW an individual type rating or, in the case of aircraft where no type rating exists, a valid exemption from the need to hold a Type Rating, is required for either the private or the commercial privileges of a SA civil licence.
- m. Applications for exemptions to (l) above shall be made to the CAA.

5.1 Responsibility of Pilot in Command

- a. The responsibility for ensuring that an aircraft is operated in accordance with its
- b. POH and Certificate of Airworthiness or Authority to Fly rests with the pilot in command.
- c. The pilot in command remains responsible to ensure that no persons are on board any aircraft during a fly-past or display routine.
- d. The pilot in command remains responsible to ensure that they always comply to all applicable regulations.
- e. The pilot in command remains responsible to ensure that they comply with applicable flight time and duty periods.
- f. Where a pilot plans to perform more than one display or in more than one aircraft, they shall liaise with the FDD to plan the program accordingly and ensure sufficient time for rest, rehydration, body breaks, de-briefing or pre-flight briefing, meals, strap in time, refuelling etc. in between displays and to ensure that pilots are not fatigued which could result in poor decision making and a lapse on concentration.

5.2 Minimum Fuel Requirements

- a. The pilot in command shall ensure that the minimum required fuel for the display shall include:
 - i. Fuel for the display,
 - ii. Sufficient fuel for holding,
 - iii. Sufficient fuel to reach a suitable alternate runway,
 - iv. Sufficient reserve fuel as per the regulations
- b. If an aircraft is unable to comply with the above, the runway must be made available to that aircraft for the duration of the display, including take-off and landing and no other movements may be permitted on the runway.

5.3 Emergency response services Duties & responsibilities

- a. Supply the necessary personnel to man the VOC.
- b. Develop and approve the Disaster management and Evacuation plans.
- c. Ensure that they understand the full scope and complexity of the event, its activities, machinery, participants, hazardous materials and foreseeable emergencies that may arise.
- d. Ensure that they have the appropriate training and equipment in a ready state to expedite, manage and bring under control any foreseeable emergencies that may arise within the event property and immediate surrounds.
- e. Maintain a vigil and visible presence throughout the entire event
- f. Maintain a state of readiness, awareness and surveillance of all activities on both the airside and public side for the duration of the event.
- g. Ensure that adequate planning and preparation is in place to react to, locate, travel, manage and bring under control any foreseeable emergency within a 5NM radius of the airfield or event location.
- h. Perform rehearsal drills at least one day prior to event with the same team that will be on duty during the event.
- i. Maintain a listening radio watch with the FDD, FDSO, ATC, VOC and the organiser throughout the event

5.4 Public Commentators duties, privileges and limitations

- a. Ensure that there are enough quality speakers to cover the entire distance of the public/crowd line, for all to clearly hear any announcements that may occur or be deemed necessary in the event of an emergency or an evacuation.
- b. Arrange that the Public commentator's position or raised platform allows for an unobstructed view of the entire public/crowd line and airside display line to accurately announce the display program in real time.
- c. Ensure that there is no radio noise or signal interference with the ATC and FDD/FDSO radio's, and that the public commentators' speakers do not prevent the ATC, FDD/FDSO and VOC from hearing each other and pilots on their radio's and cannot communicate without the need for headsets.
- d. Where the public commentator wishes to patch into the display aircrafts radio freq for commentary from the display pilot during or following a display, the public commentator shall first obtain approval from the FDD, together with the display pilot or team leader and the ATC prior to the event.
- e. Entertain the public by playing music, announcing activities in a knowledgeable and professional manner, by accurately reporting on all displays as to inform and educate the spectators.
- f. In case of an Emergency it is the public commentator's responsibility to remain calm and remain at his post at all times in order to ensure that the public remains calm, by reassuring them, and by keeping them informed should they need to move in an orderly fashion towards emergency exit points on instruction from the VOC, SAPS, FDD or Security services.
- g. The Public commentator may not under any circumstances interfere with the FDD, FDSO, ATC, Pilots, Marshalls and/or Emergency Services during the performance of their duties.
- h. The public commentator may not issue any warnings or comments about accidents, incidents, injuries or any other emergency unless it is with the clear permission of the FDD, FDSO, ATC, SAPS or VOC, all such personnel shall co-ordinate through the FDD.

5.5 Aviation Media and Photographers Duties & Responsibilities

- a. Access to the airside is not permitted to media, photographers, or any persons other than officially accredited airside officials, safety personnel, marshals, aircrew or emergency services with the approval from the FDD.
- b. Obtaining photographers or media accreditation for an event shall rest entirely with the event organiser.
- c. It is understood that photographers or media accreditation does not permit or entitle such person's access to the airside.
- d. All media and photographers shall always register and display their accreditation from the event organiser for the day with a visible accreditation badge for each specific event
- e. Attend the media safety briefing prior to gaining access to the airside. (organisers responsibility)
- f. Remain well clear of the airside, aprons, runways, taxi ways and any other areas as per the FDD's briefing or instructions at all times.
- g. Never approach or enter the airside or cross runways to media/photographer demarcated areas without the prior permission of the FDD/DFSO and ATC, such transgressions may result in the removal from the event.
- h. Should any special clearances be sought, i.e. air to air photo shoots, special areas allocated for film/TV crews etc. clearance shall be applied for together with the PIC for each participating aircraft no less than 7 days prior to event or during the practice days with the FDD and ATC, and recorded in the event operational plan, and submitted to the FDD. In the event that no clearance has been approved with a pre-declared and approved time slots no departure will be permitted.
- i. No impromptu clearances will be considered on the day of the event as the FDD/FDSO and ATC's will be pre-occupied with their official duties on the day.
- j. In case of an Emergency (accident) all media and photographers are to remain well clear of the emergency, incident or accident sight to allow the emergency services access to perform their duties.
- k. Media and photographers are not permitted into or onto the FDD/ATC tower or VOC unless specifically approved by the FDD or VOC commander as applicable.
- l. Media and photographers are not permitted to interfere or interrupt the FDD, FDSO, ATC or any other officials or emergency services under any circumstances. Such actions will lead to the removal of the person(s) in question from the entire venue. Where an ATC, official or emergency service provider is interfered with such actions could result in an arrest and criminal charges against the transgressor.
- m. Ensure that a clearly defined day-glow/reflective vest/clothing and the media being represented is worn at all times

Note: Any media or photographers attempting to interfere with officials or the emergency services by getting in the way to take will be severely dealt with, images of this type of accident for publication is in poor taste and will not be tolerated. If used for accident investigation at the request of the FDD or accident investigator this should be done at a safe distance and accompanied by the FDD, appointed official or AIID investigator.

5.6 Organisers Responsibility and Preliminary Planning

- a. The Event Organiser will need to consider and make appropriate arrangements for the following:
 - i. Event site and Flying Display management, including adjoining or off airfield properties and permissions where display flight may be performed,
 - ii. Pre-Event Audit and site assessment,
 - iii. Spectator enclosures, car parks and public address system;
 - iv. Parking and ground manoeuvring of aircraft (participants, visitors, and static displays)
 - v. Distance from crowd line to nearest rwy edge no less than 100 meters

- vi. Flight display line parallel to crowd line and no less than 150 meters,
 - vii. Minimum heights and direction for overflight of spectators and car parks,
 - viii. Determining minimum heights (Hard deck) for all displays,
 - ix. Aircraft minimum and maximum speeds;
 - x. Weather minima;
 - xi. Use and allocation of radio frequencies;
 - xii. Ground special effects safety;
 - xiii. Safety briefings;
 - xiv. Aircraft and pilot document checks and insurance
 - xv. Pilot display programmes,
 - xvi. Aircraft scrutineering
 - xvii. Pleasure flights;
 - xviii. Parachuting or paragliding as part of a Flying Display;
 - xix. Model aircraft as part of a Flying Display.
 - xx. Actions in the event of an aircraft accident, Etc
- b. Where a venue or airfield, and matter related thereto cannot comply with legal and/or safety standards the organiser should understand that the airshow and or airside activities in question shall not be approved.
 - c. Where an organiser or sponsor has already started with the planning, marketing, sales or expenditure of an event, it remains the organiser's or sponsors responsibility to first consult with the applicable authorities including the SACAA to establish the viability of the intended event.
 - d. The SACAA's decision to approve or decline an SAE application is not based on commercial or financial considerations, and only on legal and safety considerations.
 - e. Where SACAA has indicated verbally or in writing that it may in principal support a planned SAE or similar event, this shall not be considered as an approval. Its support in principal would be on the assumption that all legal and safety standards shall be complied with and in place within the prescribed timeframes as per the application and administrative requirements of this manual or any other legal requirement.
 - f. SACAA accepts no responsibility for financial or other losses incurred as a result of an unsuccessful application or event irrespective of the event being formally approved or the application being unsuccessful.
 - g. Liaison with SACAA, ATNS, CAA, AIID and the Local Authority and Emergency Services including:
 - i. Prior application for the event to SACAA.
 - ii. Notification time scales.

Note: Certain of these aspects are discussed in detail under separate chapters.

CHAPTER 5 - THE FLYING DISPLAY – SITE AND DISPLAY MANAGEMENT

1. Site assessment

- a. Where the Special Air Event is held at a licensed or registered aerodrome the licensee remains responsible for ensuring that the conditions of the aerodrome licence are not infringed.
- b. If any such condition is likely to be infringed then early discussions must take place between the Event Organiser, the FDD and the Aerodrome Licensee.
- c. The Aerodrome Licensee or his representative (or the aerodrome operators if the aerodrome is unlicensed) must be involved in the preparation for the Special Air Event.
- d. While many flying displays and special events are held at licensed or registered aerodromes and can take advantages of facilities already available, a number are staged at other sites, in such cases the organiser shall prepare a manual of procedures specific to that event and submit such Handbook for approval no less than 150 days prior to the event.
- e. A site is sometimes used merely for the assembly of spectators and aircraft do not take-off or land there.
- f. Proper consultation and written approvals shall be obtained from adjoining or off airfield property owners or local authorities where the display box or activities are not contained within the lateral limits of the airfield boundaries.
- g. Having obtained written permissions, in the event where display boxes or display activities encroach or are performed over an adjoining property, properties or an area, such as beaches, bodies of water, settlements etc, sufficient measures shall be in place to prevent access and entry by the public. Failing such measures, displays may not take place over these areas
- h. FDD's should impose the appropriate minimum height restrictions over local sensitive and congested areas.
- i. Details of any restrictions imposed should be clearly communicated to participating pilots in the Flying Display instructions.
- j. Gas/Helium filled toy balloons when released are a potential hazard to aircraft. Event Organisers and event security must ensure that the vendors of such items are not allowed into the event venue, public enclosures or surrounding areas.
- k. Existing legislation provides that unmanned, gas-filled, advertising balloons should not be flown in captive flight at or near an aerodrome.
- l. UAV's, RPAS, Drones present a potential hazard to the event safety, person, property and aircraft. Event Organisers and event security must ensure that such items or vendors of such items are not allowed into the event venue, public enclosures or surrounding areas.
- m. UAV, RPAS, drones' operators with the necessary licenses and operators approvals from the SACAA may not operate, fly or demonstrate their products for any purpose in, at or around the event venue, unless specifically approved by the FDD and the details of the operator has been included in the SAE application operations plan, and approved by the SACAA.
 - i. Organisers are reminded that it is compulsory to obtain public liability insurance for the event in accordance with the "Safety at Sports and Recreational Events Act (Act 2, of 2010)"

2. Spectator enclosures, car parks and public address system

- a. The Airshow Organiser and FDD must carefully select sites for the spectator enclosures and car parks in relation to and clear of the aircraft landing areas and flight paths during the flying display.
- b. Spectator enclosures shall be positioned behind the crowd line, which is parallel to the Display Line.
- c. Normally spectator enclosures and car parks should be confined to one side of the site thus allowing aircraft maximum freedom of movement on the other side.
- d. A public address system covering the spectator enclosures is required and of great assistance in crowd control and is essential where large numbers are involved.
- e. Such a system, when installed, must be audible along the entire length of the crowd line.
- f. The commentator should be in a position where important messages or emergency information can be given to him for rapid broadcast to the public.
- g. Consideration should be given to pre-planning of certain messages to cover possible major emergency situations.

3. Parking and ground manoeuvring of aircraft

- a. Aircraft taking part in the airshow should be segregated from both visiting and static aircraft parks unless arrangements are made to tow aircraft from the static aircraft parks to an aircraft parking or manoeuvring area, appropriately segregated from the public, prior to start.
- b. In this case, adequate arrangements must be made to ensure public safety during the aircraft movement.
- c. Under no circumstances or at any time will aircraft have any engines running or move under their own power in and around or in close proximity to members of the public and spectators, unless such spectators are positioned behind a secure solid barrier that separates them from the aircraft and aircraft movements.
- d. Appropriate security should be in place to guard against interference with aircraft.
- e. Pilots should be advised to ensure that starting systems etc are isolated.
- f. Fire extinguishers should be readily available, and aircraft should be parked so that fire vehicles can achieve easy access and move freely among them.
- g. Aircraft parking areas shall be out of bounds to spectators when aircraft engines are running, or aircraft are taxiing.
- h. Spectator enclosures should be sited away from taxiways and runway strips and so arranged that no part of a taxiing aircraft passes within 10 metres of them.
- i. This distance will need to be increased if spectators are positioned behind or close to where aircraft are ground running engines particularly in the case of high-powered aircraft, jet aircraft or large helicopters, and more particularly when aircraft are likely to use significant amounts of power such as when turning.
- j. Helicopters should only be permitted to ground taxi far away from spectators, aircraft parking and car parking areas.
- k. Spectators shall not be allowed closer than 50 metres to any fixed refuelling area, nor closer than 50 metres radial from any fuelling or venting point on an aircraft or bowsers whilst refuelling is being carried out.
- l. Effective barriers (Not barrier tape or soft moveable barriers) and marshalling arrangements are required to keep spectators clear of aircraft manoeuvring areas.
- m. Areas in which spectators are not permitted must be properly enclosed at all times.

- n. Marshals must be detailed to control the movement of spectators throughout the event.
- o. Smoking shall not be permitted closer than 50 meters of any aircraft parking areas, static aircraft, fuel bowsers or refuelling areas.
- p. Light aircraft may take-off and land provided the runway is not less than 100 metres from the crowd line.
- q. The runway should be kept available to the maximum extent for emergency purposes during the flying display, and aircraft departing, and landing should minimise the time they occupy the runway whilst other aircraft are displaying.

4. The display line

- a. Displaying aircraft perform relative to a display line, which must be clearly identified.
- b. On an aerodrome, this is normally parallel to the far side of a runway in relation to the crowd line, on off-aerodrome sites, parallel to any spectators, general public and some significant feature.
- c. Where the Display Line is not clearly delineated by a paved runway or other obvious line feature it can be marked with day-glow pyramids or panels, whitewashed lines, or by some other suitable method such as an imaginary line running parallel to a defined feature such as a road, runway, taxiway or structure.
- d. For aircraft flying in formation, the distances are applicable to the aircraft performing nearest to the crowd line.
- e. Whilst the minimum distance shall be as per the table in 5.5 below, the minimum distance between the display line (flight line) and crowd line, shall be further as determined by the FDD based on the type, size, weight, complexity and speed of the aircraft and display sequence, as well as any other factors that may have an influence on the safety of the display and spectators, such as topography, geography, fauna and flora and the layout of the airfield, buildings, structures and surrounding areas.
- f. Speciality acts such as ribbon cuts, knife edge fly pasts, touch and goes, short field take offs and landings etc, may be considered providing that a suitable plan to mitigate the risk and manage public safety, has been developed or the runway to crowd line distances are sufficiently further away to permit this.
- g. In the case where faster, heavier or more complex aircraft are landing and taking off at an event, the minimum distance from the nearest edge of the runway and/or flight/display line to the closest point of the public/crowd line should be extended accordingly, special consideration should be given to the active runway in terms of landing and taking off in relation to where the spectators are positioned and the energy of the arriving and departing aircraft.
- h. Pilots should plan their flying sequence such that they can always regain the display Line without infringing the minimum lateral separation distance from the crowd line.
- i. Effects of any on-crowd velocity vectors and on-crowd wind components must be considered to further extend the display line.
- j. No flights may be flown towards the crowd line or open assembly of persons or car park where people are permitted to gather.
- k. Notwithstanding the requirements above approved manoeuvres such as a formation switchblade with aircraft flying toward the crowd line must always remain outside a 45° or greater cone depending on the width of the crowd line and may not extend closer than the distance of the applicable display line.
- l. The FDD, based on the type, size, weight, complexity and speed of the aircraft and display sequence should determine further distances of such a manoeuvre.

- m. No flights may be performed while approaching the crowd line from the rear, unless specifically approved by the safety officer and must always remain outside a 45° or greater cone of the crowd line and at least 1000ft above the crowd.
- n. Rotorcraft must not be flown in such proximity to spectators' enclosures, buildings or aircraft on the ground as to cause a possible hazard or nuisance either from down wash or as a result of control difficulties. Similarly, helicopters with underslung loads should only be flown over open and clear areas.
- o. The energy component of a rotorcraft/helicopter lies with the inertia and energy forces stored in the main rotors or tail rotor, accordingly reasonable distances should be considered with these forces in mind in the event of a dynamic rollover ground impact or other incident whereby the rotors or parts of the rotors could potentially be propelled towards spectators or public areas.

5. Minimum distance parallel to and from the crowd line to the nearest edge of the display lines

A) ALL MICROLIGHT AND LIGHTSPORT AIRCRAFT WITH A MTOW BELOW 600kg			
AIRCRAFT & DISPLAY SPEEDS	Type of Display		
	Flat Fly Pasts (Wings Level & Parallel to crowd line)	Aerobatics or Aerobatic Manoeuvres	Rotorcraft
Model aircraft (excluding Jets & large-scale models)	30m	70m	50m
Model Jets	70m	100m	NA
Microlights, Light sport aircraft Less than 50kts IAS	50m	100m	150m
Microlights, Light sport aircraft 50kts to 90kts IAS	70m	100m	150m
Microlights, Light sport aircraft greater than 90kts IAS, less than 150Kts IAS	100m	150m	150m
B) ALL LIGHT AIRCRAFT WITH A MTOW BELOW 1200kg			
Rotorcraft take-off, landing & hover & transition	NA	NA	150m
Aircraft Less than 100kts IAS	150m	200m	200m
Aircraft 100kts to 150kts IAS	150m	230m	250m
Aircraft Greater than 150kts IAS	150m	250m	300m
C) ALL AIRCRAFT WITH A MTOW GREATER THAN 1200kg AND LESS THAN 2545kg			
Rotorcraft take-off, landing & hover & transition	NA	NA	200m

Aircraft Less than 150kts IAS	150m	250m	250m
Aircraft Greater than 150kts IAS	200m	300m	300m
D) ALL AIRCRAFT WITH A MTOW ABOVE 2545kg, JETS AND ALL AIRCRAFT 300kts> IAS			
Rotorcraft take-off, landing & hover & transition	NA	NA	250m
Aircraft Less than 300kts IAS	200m	300m	300m
All Aircraft Speeds Greater than 300kts IAS	250m	400m	NA
E) ALL COMMERCIAL AIRCRAFT OPERATING UNDER PART 135 AND PART 121			
All Speeds	500m	NA	NA

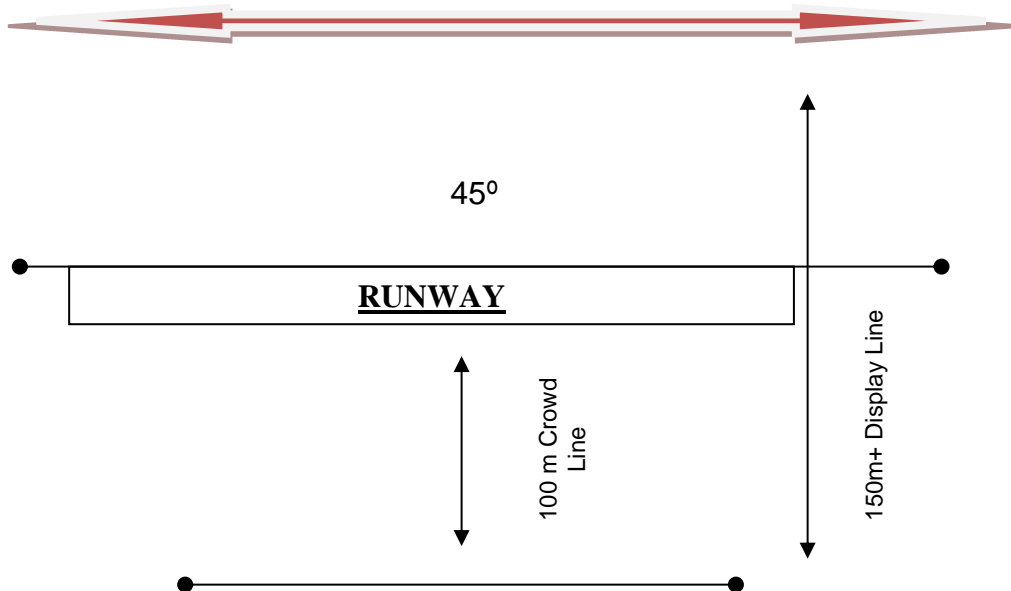


Figure 2: 5.1 Minimum Display line distance, (see aircraft categories for weight, speed and display in table above)

SPECIAL AIR EVENTS HANDBOOK

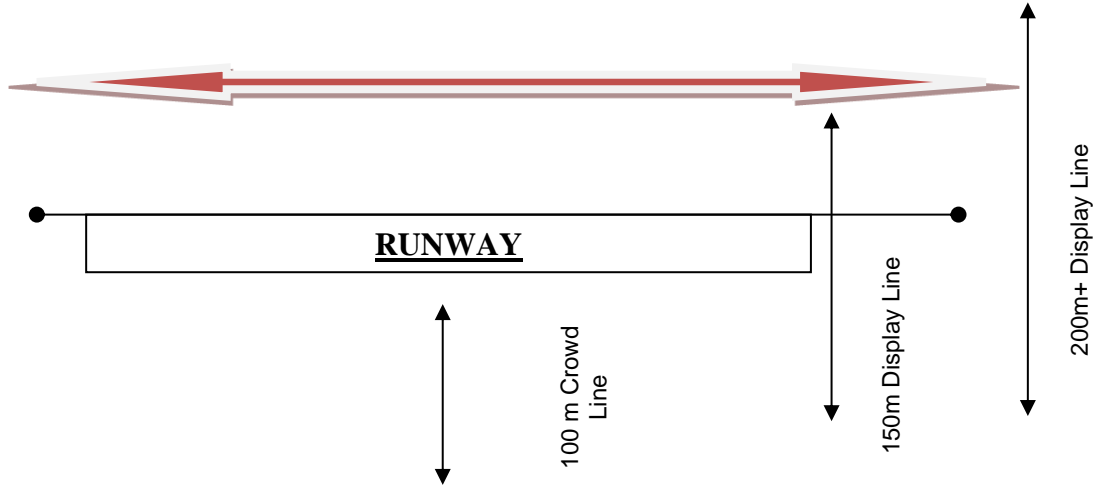


Figure 3: 5.2-Increased Distance for Aerobatics, heavier and faster aircraft as per table above Fly Display Area

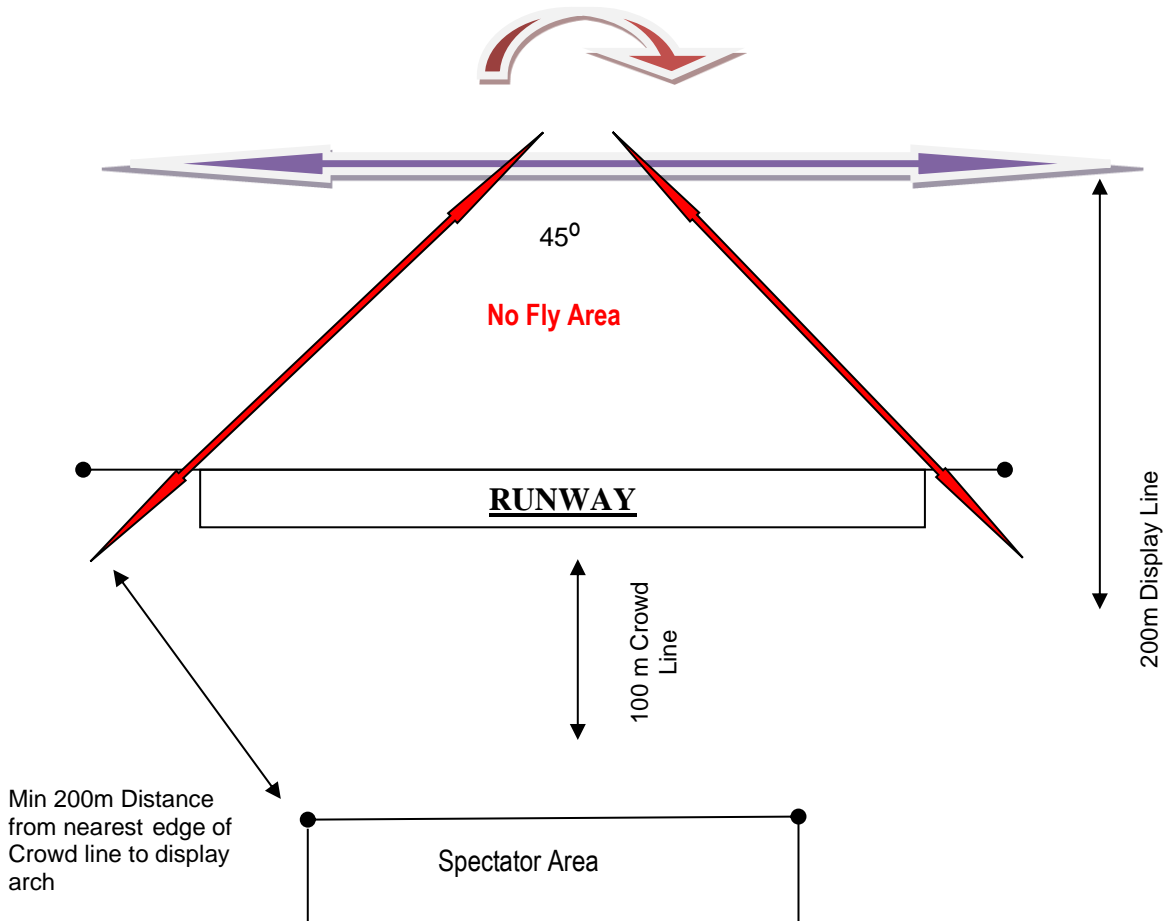


Figure 4: 5.3 No Fly Area inside of 45° arch

5.2 Minimum distances from crowd line to edge of runway

- a. The minimum distance from the nearest edge of the crowd line (closest to the runway) to the nearest edge of the active runway, shall be a horizontal distance of no less than 100 meters, and shall be further away depending on the size, weight, speed and complexity of the aircraft see chart in 5.5 above.
- b. In the case of a microlight, model aircraft, paraglider or parachute only events where the MTOW weight of an aircraft does not exceed 450kg the minimum distance may be reduced to no less 50m
- c. In the case of model jet aircraft, the minimum distance shall be no less than 80m

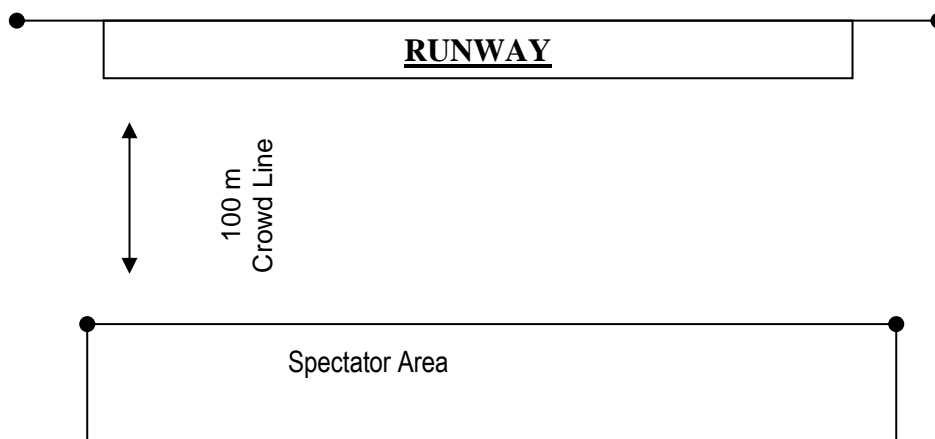


Figure 5: 5.4 Minimum Distance between forward part of crowd line and runway edge

5.3 Overflight of spectators

- a. Display aircraft are NOT permitted to overfly any spectator enclosures.
- b. Display aircraft may not fly towards spectators, public areas, car parks or buildings and structures.
- c. Display aircraft's flight lines shall always remain outside of a 45° arch away from spectators, public areas, car parks or buildings and structures.
- d. No display shall be flown overhead the spectators, public areas, car parks or building and structures, unless;
 - i. it is part of a flat (wings level) overflight routine approved by the FDD, and
 - ii. the SACAA as provided in the SAE program, and
 - iii. is performed no less than 1000ft AGL above the spectators or the highest obstacle within a 1km radius or higher, if so determined by the FDD for a single overflight, or 3000ft AGL or higher for repeated overflights in accordance with Part 91 of the SA-CARS, and
- e. in accordance with the approved display sequence and minimum distances in 5.8 below, and
- f. NO Aerobatics towards or overhead any spectators, public areas, carparks or built up areas!

6. Flight displays and energy vectors towards spectators, public areas, car parks and building or structures

- a. Display aircraft performing switchblades or any other manoeuvre with the direction of flight and/or energy vector directed towards spectators, public areas, car parks and buildings or structures, the manoeuvres shall terminate no closer than;

A) ALL AIRCRAFT FLYING DISPLAYS TOWARDS SPECTATORS, PUBLIC AREAS, CAR PARKS ETC			
AIRCRAFT DISPLAY SPEED	Type of Display		
	Flat Fly Over (Wings Level)	Aerobatics or Aerobatic Manoeuvres	Rotorcraft
All aircraft less than 600kg MTOW, at speeds less than 100kts IAS	150m and Wings level for overflight min 1000ft AGL	200m and no overflight	200m and level flight for overflight min 1000ft AGL
All aircraft less than 1200kg MTOW, at speeds less than 150kts IAS	200m and Wings level for overflight min 1000ft AGL	250m and no overflight	250m and level flight for overflight min 1000ft AGL
All aircraft greater than 1200kg MTOW and less than 2545kg MTOW, at speeds greater than 150kts IAS and less than 200kts IAS	250m and Wings level for overflight min 1000ft AGL	300m and no overflight	300m and level flight for overflight min 1000ft AGL
All aircraft greater than 2545kg MTOW, at speeds greater than 200kts IAS and less than 250kts IAS	300m and Wings level for overflight min 1000ft AGL	350m and no overflight	350m and level flight for overflight min 1000ft AGL
All other aircraft and JETS, and with speeds greater than 250kts IAS	450m and Wings level for overflight min 1000ft AGL	450m and no overflight	NA

Figure 6: 6.1

7. Setting of minimum heights

- a. When air shows are held at aerodromes, the absolute minimum height over the display area shall be 35ft AGL, this shall be known as the hard deck, the FDD shall increase the hard deck height having considered actual and forecasted weather and based on an increase of density altitude.
- b. The FDD may allow participants to fly to the minimum height specified in their individual DA providing it is not lower than the hard deck, or higher as determined by the FDD, based on the pre event audit and the type, weight, complexity and speed of the aircraft and display sequence, as well as any other factors that may have an influence

- on the safety of the display, spectators and public, such as topography, geography, fauna and flora and the layout of the airfield, buildings, structures and surrounding areas such as public roads, parks, etc.
- c. Irrespective of the location, the FDD has the duty to impose higher limits if deemed necessary, these higher limits shall be known as the hard deck or airshow minimum height. The hard deck shall become zero height for pilots with a zero-foot rating.
 - d. All pilots shall adhere to this minimum height as briefed by the FDD prior to the event, any non-compliance may result in a suspension of the pilot from further display flights for the event, or further action as may be determined.
 - e. The FDD shall ensure that pilots are advised of the minimum heights applicable at the SAE in both verbal and pre-circulated written briefings.
 - f. Pilots of military aircraft participating in a civil event should advise the FDD of their individual height minima.
 - g. Where the limits laid down in the permission issued are higher than the military pilot's limits, the pilot is to be informed that the more stringent limit applies during the Airshow.
 - h. In the case of civilian registered ex-military Jets performing aerobatic manoeuvres, the lower limit shall be not less than 500ft AGL, unless written approval has been obtained from the SACAA ASO Executive on an individual basis to reduce this limitation.

NB: These recommended minima's do not relieve the organiser from obtaining the required permission or exemption.

FIG.

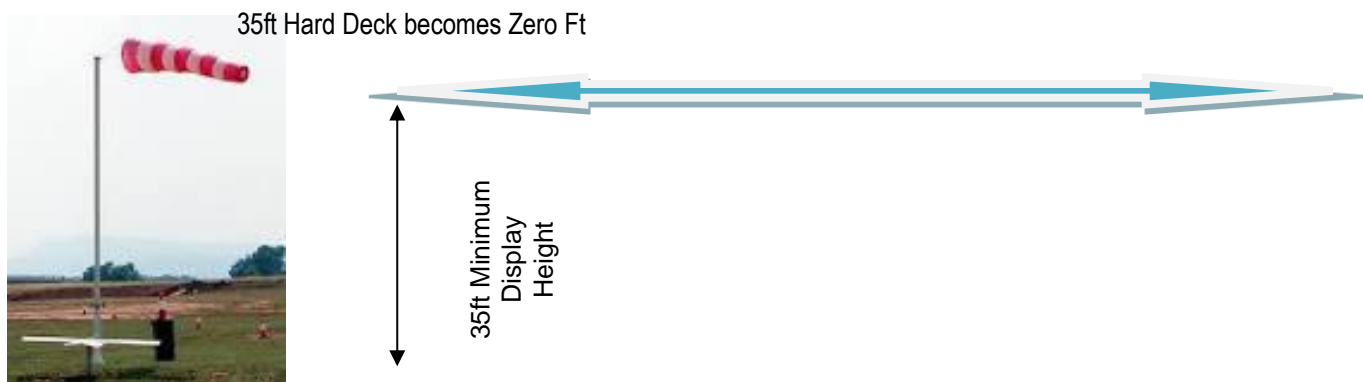


Figure 7: 7.1. Minimum Display Height or Hard Deck, Flat area and no hazards i.e. buildings, power lines, hills etc

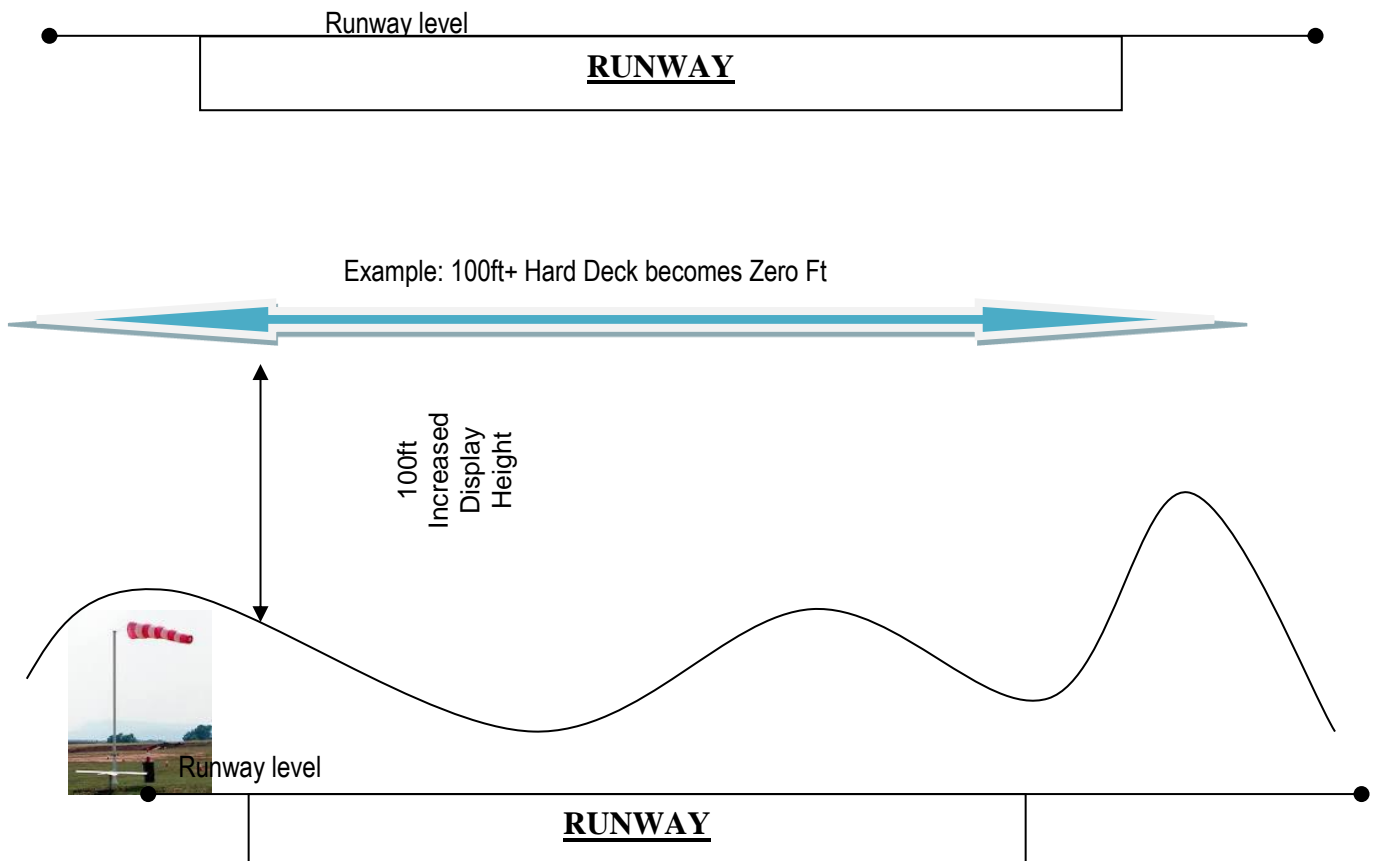


Figure 8: 7.2. Increased Display Height due to hazards, buildings, power lines, topography etc

8. Aircraft maximum speeds

- a. An absolute true limit of Mach 0.90 or 600kts, whichever is reached first, is not to be exceeded in straight and level flight parallel to the crowd line, and at no less than 300ft height and 500 meters horizontally away from the crowd line.
- b. Aircraft flying at or approaching this speed shall reduce speed further before initiating any manoeuvre to avoid inadvertent sonic booms.
- c. Aircraft taking part in Flying Displays for which permission has been granted may be exempted from the maximum speed limit of 250kts IAS when flying below the relevant TMA provided ATNS is timeously informed.
- d. FDD's should be aware that this exemption only applies during the validity period of the Flying Display Permission and within the vicinity of the Special Air Event site.
- e. SA civil registered aircraft, which are exceeding 250kts in controlled airspace, should also have obtained an individual permission from the SACAA.

9. Weather minima

- a. FDD's should consider carefully the operating characteristics of participating aircraft that may necessitate specific increases in the above minima.
- b. Military displays, particularly jet formations, may have significantly higher weather limitations than those specified.
- c. It should be borne in mind that participants may be restricted by their licences or rating privileges.

10. Use and allocation of radio frequencies

- a. Airshows and Flying events will require the use of radio communications.
- b. Where feasible and within the constraints covered in Chapter 5, FDD's should endeavour to allocate a display box/area frequency for use during the Special Air Event with another frequency being available for administrative requirements and control of non-display aircraft.
- c. If only one frequency is available, the FDD must emphasise, in the briefing, the need for good RT discipline and for the minimum use of RT.
- d. The FDD or FDSO if and when required may communicate on the display box/area or operational frequency if they observe any situation to alert or inform display or other aircraft in the display box of any potential hazard or requirements to reposition higher (step up) or further away (step out) should the need arise due to safety considerations, as well as calling a hold or abort (break off) message in case of any infringements, safety considerations and other incident or emergency, even if the FDD/FDSO is not an ATC or AFIS.
- e. An FDD should hold at least a restricted radio telephony licence before communicating on any airband frequency with aircraft in the display box/area.
- f. A display frequency may be applied for from the SACAA. This is normally 120.20 MHz unless specified different.
- g. Certain teams may have their own approved discreet frequencies, these should be provided to the FDD and ATC/AFIS prior to the show.

11. Ground special effects safety

- a. The use of explosives for simulated ground bursts, smoke and other special effects must be strictly controlled by a competent and duly licensed and registered person appointed by the event organiser.
- b. All pyrotechnics at air events shall be done in accordance with an approved manual of procedures as approved by the SAPS Explosives unit.
- c. A qualified member of the SAPS shall inspect and sign off on all charges and the approval document prior to the event.
- d. Debris from such effects must not impinge on aircraft, the spectators, any member of the public or the runway/taxiways and to this end the scale of any effects must be known before the event.
- e. Briefings for ground officials and display pilots must draw attention to the hazardous nature of such devices and approval of all involved display pilots must be achieved before any demonstration goes ahead.
- f. The location of the explosives and safety radius, if appropriate, are to be out of bounds to all staff except those directly involved with their operation.
- g. Organisers shall also ensure that adequate fire protection is available for the type of display.

12. BRIEFING

- a. Regardless of the size of the flying display, the importance of a thorough formal briefing cannot be over-emphasized.
- b. The airshow briefing template that forms part of this manual shall be used as a minimum standard by FDD's.
- c. No pilot may take part in a Flying Display unless he has received an appropriate briefing at the event by the appointed FDD.
- d. A comprehensive written brief on the arrangements for the flying programme shall be circulated in advance to all participating pilots, Air Traffic Control, pleasure flight operators and those in charge of particular aspects of the airshow, such as a safety service.
- e. A formal verbal briefing should be given on each day of the airshow and at any rehearsal or press day, and all participants and persons entering the airside must physically attend.
- f. Each briefing must include Air Traffic briefing, a time check, any changes to the programme or procedures, and a reminder about the authority of the FDD to curtail or modify the display programme once it has started providing enough time has been allocated to notify the display pilots.
- g. The need for strict adherence to procedures should be stressed, particularly in the event of cancellation of part of, or the whole programme.
- h. Pilots must be reminded that they may not fly over spectator or public enclosures or make turns towards them, which cannot be completed without infringing the safety zone between the Display Line and the Crowd Line.
- i. If a NOTAM or Temporary Air Traffic Zone (ATZ) has been issued, specifying the limits of the airspace within which the aircraft will be performing, pilots must be reminded of the need to keep within those boundaries, and of the fact that they are still required to observe the rules for avoiding aerial collisions.
- j. The display minima, whether these are determined by the DA, or other limits imposed by the FDD, should be confirmed at the verbal briefing.
- k. The extent and method of marking the display line(s) and display datum must be confirmed, preferably with the use of a large-scale map.
- l. Participants flying military jets, or large commercial aircraft that are not able to land at the flying display site or flying into a display routine prior to landing, shall contact the FDD, immediately prior to the display to obtain and confirm a briefing per telephone and to confirm the display flight line, height and timing as per the briefing notes sent to the pilots in advance.

13. Document checks and insurance

- a. FDD's or authorised persons may check all required display pilot/aircraft documentation details if deemed necessary i.e. (pilot license, DA, display currency confirmation, medical validity, aircraft airworthiness documents (C of A or ATF) etc, prior to or during to the day of the Special Air Event.
- b. Event Organisers are advised to seek professional guidance on liability aspects and to obtain advice from a reputable insurance broker with aviation experience as to the appropriate level of third-party liability coverage that should be affected.
- c. This should be done at the earliest possible stage in planning

14. Pilot display programmes

- a. The FDD and FDSO's should familiarise themselves with each pilot's planned sequence of display and to ensure that it complies with the appropriate safety criteria.
- b. Both the full display sequence and any bad weather alternatives should comply.
- c. The FDD and FDSO should observe that all pilots do not perform any form of impromptu display such as on arrival or departure (unless pre-planned, practiced and agreed on by the FDD).

15. Carriage of persons on board display aircraft

- a. No persons other than essential crew as per the aircraft's certification and approved flight manual may be on board a civil aircraft during the display.

16. Displays by air operator's certificate holders other than at approved sae's

- a. Displays by AOC operators (large transport aircraft, police, medical and S&R helicopters, aerobatic teams etc.) will normally be conducted under an approved Handbook and AOC certificate as issued by SACAA, and with written approval from the SACAA prior to each such display event
- b. The AOC holder shall, in addition to the written approval above, obtain prior approval from CAMU for flexible use of airspace and publish a NOTAM.
- c. The OAC holder remains responsible to apply diligence and adhere to minimum safety standards by appointing their own safety officer and ensuring that disaster management plans, emergency responders, local authority or landowners' permissions are obtained, minimum distances and heights are observed etc.
- d. Two or more AOC holders performing more than one act at any public/spectator or multi-disciplinary event shall be a special air event and adhere to the requirements of this manual.
- e. At approved Special Air Events, the holder of an AOC will still be required to adhere to a DA and to the Event FDD's briefing and minima's or any other requirement that the FDD deems necessary.
- f. Formation flights by large commercial air transport aircraft will not normally be permitted, but specific applications will be considered on their merits with prior written approval from the SACAA Part 127, 135 or Part 121 departments.
- g. All displays with large commercial aircraft shall be planned, briefed and rehearsed in a flight simulator similar to the aircraft being used for the air display and observed by a suitably rated DAE.

17. PLEASURE FLIGHTS at Special Air Events

- a. Pleasure flights may not be conducted during an airshow unless;
 - i. Specifically approved by the FDD in advance and after consultation with the organiser, ATC and the SACAA.
 - ii. Pleasure flights for reward may only be conducted by organisations holding an AOC and a domestic air services licence,

- iii. Any pleasure flights not for reward, but as part of an educational or development program may be performed, if planned and approved with the FDD in advance.
- iv. FDD's are to ensure that pleasure flights do not take place during the flying display period, these may be conducted before or after the conclusion of the flying displays, or during predetermined timeslots as provided for on the display program.
- v. Aircraft engaged on pleasure flights before or after the airshow program must be parked away from the public and aircraft taking part in the airshow, and passengers shall be escorted between the spectator enclosures and the aircraft before and after each flight.
 - This route shall be properly planned to take them well clear of other aircraft.
 - Smoking is not be permitted inside or close to the aircraft parking area.

18. Helicopter flights

- a. If helicopters are used for pleasure flights, they must be positioned and routed away from spectators and car parks to prevent problems with rotor downwash.
- b. In all cases the site used for passenger loading and unloading must be well clear of the flying area and remain no less than 300m/1000ft from the crowd line as per the minimum distances from crowd to display line with prior approval by the FDD and ATC/AFIS.
- c. All operators providing flips, scenic flights, introductory flights etc, shall do so under their approved AOC and air services licence, as well as ensure that they have their own emergency response and service providers.
- d. If the helicopter operating area is not adjacent to the spectator enclosure, as could be the case at off-airfield events, those parts of the site at which passengers would be expected to assemble before being escorted to the helicopter should be fenced off securely.
- e. Arrangements must also be made to prevent access to the helicopter operating area by third parties.

19. Marshals, officials, escorts

- a. Marshals must remain on duty until all pleasure flights have been concluded.
- b. Escorts must be briefed on, and demonstrate their knowledge of, the correct manner of approaching, boarding and disembarking from aircraft.
- c. A pre-arranged system of communication or signalling between the escort and pilot is essential so that the pilot may know when passengers and escort are clear of the aircraft.
- d. To avoid the possibility of any misunderstanding between the pilot and escort they must, before the start of flying, discuss and agree on matters as the positioning of the aircraft at the changeover point, and the procedures to be used.

20. Parachuting as part of the flying display

- a. Any person wishing to perform a display parachute jump at a fly-in, mentorship or special air event shall have a current pro rating or equivalent display parachute rating, or an approval from the SACAA. On request from the FDD/DFSO all parachute jumpers shall present their rating cards or written approvals to the FDD or FDSO.

- b. Aircraft landing and taking off, or other aircraft with engines running and turning propellers, rotors, or jet blasts may present a hazard to parachutists. Fixed aircraft may be permitted to start or taxi during parachute descends, if the FDD or FDSO has briefed the parachutists on their landing areas and no-go areas to avoid such hazards, and if the FDD and parachutists are in prior agreement to such operations.
- c. In order to minimize the risks FDD's are to ensure that the following procedures are followed:
 - i. All pilots are to be briefed on the procedures to be followed during any parachute drop.
 - ii. Under no circumstances may helicopter rotors to be turning closer than 200 metres to the intended parachute landing area during the period that the parachutists will be exiting and descending until after it has been confirmed that all parachutists have landed.
 - iii. Pilots of aircraft outside a radius of 300 metres (600 metres in the case of pleasure flights), both airborne and on the ground, should be made and remain aware of the position and progress of the descending parachutists.
 - iv. FDD and FDSO's should programme events in such a manner that potential conflicts between aircraft and parachutists are avoided and minimized.
 - v. A suitable area needs to be clearly identified and remain clear for parachutists to land safely, depending on wind direction parachutists may need to land on or across the runway, the FDD and ATC/AFIS needs to ensure that the runway remains clear during this period.

21. Parachute dropping aircraft and parachutists

- a. Whilst parachutists may exit the jump aircraft overhead a spectator, public or built up area at an altitude no lower than 2500ft AGL in order to adjust for wind speed and direction, no parachutists shall descend directly overhead spectator areas, public areas or built areas lower than 1000ft AGL or 1000ft above the highest point of a structure within the airfield or SAE display box.
- b. Parachutists may land 5 meters or more away from and parallel to the spectator area/crowd line, however parachutists may not land towards any spectator or public area at distance less than 50 meters.
- c. Parachutists may not perform hook turns, or any low-level high-energy manoeuvre lower than 500ft agl and prior to landing.
- d. BASE jumping is not skydiving. Any exit from any aircraft including balloons and hang or paragliders is deemed to be a skydive and all parachutist/skydiver shall use only approved skydiving/parachuting equipment and gear as well as the applicable currency and ratings as per A above.
Any exit from any aircraft including balloons and hang or paragliders is not a BASE jump. Basejumps and the use of base-jumping equipment/gear is not permitted during a special air event or skydive/parachute display jump.

22. Paragliders and hang gliders or powered derivatives thereof as part of the flying display

- a. Any person wishing to perform a para or hang glider display at a special air event, have a current display authorisation as validated from an appropriately rated DAE and approval from SACAA. On request from the FDD/DFSO all paraglider and/or hang glider pilots shall present their rating cards or SACAA approvals to the FDD or FDSO.
- b. Aircraft landing and taking off, or other aircraft with engines running and turning propellers, rotors, or jet blast may constitute a hazard to para or hang gliders.

- c. In order to minimize the risks FDD's are to ensure that the following procedures are followed:
- i. All pilots are to be briefed on the procedures to be followed during display.
 - ii. Under no circumstances may helicopter rotors to be turning closer than 300 metres to the intended hang or paraglider-landing site during the period of the display.
 - iii. Pilots of aircraft outside a radius of 300 metres (600 metres in the case of pleasure flights), both airborne and on the ground, should remain aware of the progress of the display.
 - iv. FDD and FDSO's should programme events in such a manner that potential conflicts between aircraft and hang and paragliders are minimized.
 - v. A suitable area needs to be kept open for hang and paragliders to land safely, depending on wind direction they may need to land on the runway, the FDD and ATC/AFIS needs to ensure that the runway remains clear during this period.
 - vi. Parachutists are not paraglider pilots, and paraglider pilots are not parachutist unless each hold the respective individual ratings and approvals. A "D Bag" jump with a paraglider is not a skydive or parachute jump.
 - vii. "D bag" exists with paraglider may only be performed from stationary airborne aircraft i.e. hot air balloons and with the necessary rating and approvals from the applicable ARO as provided for in their manual and by the FDD.
 - viii. "D bag jumps" with paragliders may not be performed from regular fixed wing, rotor wing, weight shift or gyrocopter aircraft.
 - ix. Non-powered para gliders (PG) may land 5 meters or more away from and parallel to the spectator area/crowd line, however paragliders may not land towards any spectator or public area at distance less than 50 meters.
 - x. Paragliders may not perform, steep turns or any low-level high-energy manoeuvre lower than 500ft agl and prior to landing.

23. Manned balloon separation criteria

- a. Manned balloons should not overfly the spectator enclosures below the following minimum heights:

<u>Type of display</u>	<u>Separation Distance</u>	<u>Minimum Height and Conditions for Overflight of the Spectators</u>
Tethered Flight	50 metres	Or not closer to spectators or the crowd line than the length of the tether.
Free flight take-off from the display area	100 metres	75 feet above ground level in climbing flight 50 feet clear of obstacle
Free flight landings into the display area	100 metres	50 feet above ground level for overflight in level flight 50 feet clear of obstacle

24. Model aircraft as part of a flying display

- a. Any person wishing to fly a model aircraft at a special air event shall have documented proof from the ARO that they are rated and approved by the ARO to fly model aircraft at public events.
- b. At an airshow, model aircraft display flights will be under the control of a model aircraft safety officer who should have experience with model aircraft and report to the FDD for the safe conduct and control of the model flying activities.

24.1 Model display limitations

- a. Uncontrolled free flight models shall not be flown during the period of the airshow.
- b. Where the designated model aircraft display area is in an area set aside for the spectators it should be safely enclosed.
- c. RPAS or UAV's (Drones) may not be flown at airshows unless prior written approval has been obtained from SACAA and the pilot validated by the FDD to perform a display. Under no circumstances may any RPAS, UAV, Drones be flown close to or at an airshow or any other special air event by private individuals or close to, or overhead open assemblies or people, car parks or buildings.
- d. The FDD and FDSO shall add an additional separation distance for models of exceptional dimensions or performance.
- e. The FDD should ensure that model aircraft displays are adequately separated in distance or time from other flying events.
- f. Where the model flying is taking place on the display side of the event, there should be direct communications between the FDD to ensure that in the event of an aircraft emergency the model flying can be stopped as quickly as possible.
- g. The Flight Director is responsible for arranging strict control and use of model aircraft transmitters and frequencies.

25. Pilot conduct

25.1 All participating pilots at SAE's shall always observe and conduct themselves to the highest standards of discipline and safety

25.2 Rogue Pilot Behaviour:

- a. **During arrival** – blatantly showing off, especially low initial or runway inspection, non-predictable behaviour
- b. **During briefing** – not phased, non-interested and cocky attitude, possibly slightly late with no excuse and offering none
- c. **On ground** - not considering other participants, marshals or public, taxi speed, warm-up, checks, and so on
- d. **In the air** – Aggressive manoeuvring, not adhering to display line, not adhering to heights, change of sequence without reason
- e. **Debriefing** – “I have been there, got many T-shirts, what do you know anyway” attitude
- f. **In general** – normal behaviour that makes the FDD/FDSO work harder than required regarding professionals

- g. **Flying display at Non-approved events** – Flying a display or any sequence at any event other than an SACAA approved special air event

25.3 Punitive action

- a. **Warning** – Unintended slip in energy management or late in declaring change of sequence, but obvious good attitude, listening and respecting authority.
- b. **Yellow Card** – Busting the hard deck slightly, but repeatedly after FDD/FDSO called “check height” or busting display line after FDD/FDSO verbal reminder. It is clear that he does not want to adjust for the conditions, safety breach not considered deliberate, but rather trying to stay close to the limits as set. Wind can play a big role.
- c. **Red Card** – Blatant breach of heights without the need of potential energy usage or repositioning because of wind. Show-off with clear intention to make a point, be remembered for the rogue behaviour or blatantly show disrespect to authority of SO.
- d. **Suspension** – On receiving a Red Card the person will be suspended pending an investigation of the incident well as the suitability of the offender to hold any accreditation regarding air show activities.

25.4 Performance Log Keeping

- a. x Warnings = Yellow card
- b. x Yellow cards = Red card
- c. A Yellow or Red Card is not dependent on any preceding warnings or yellow cards and can be issued if the conditions are met for issue as per definition.
- d. Red card: No further display during that specific show event
- e. Third Red card leads to loss of display accreditation
- f. Any warning or card is a reportable incident in FDD report to SACAA/ASSA
- g. FDD report must have details specific to the transgression and state further actions if required.

26. Motor sport, motor racing or any competitive or high-speed demonstrations with motor vehicles.

- a. The SACAA has no authority to consider or approve any form of motor sport, motor racing, competitive or high-speed demonstration with any motor vehicle.
- b. All special air event organisers wanting to offer any form of motor sport, motor racing, competitive or high-speed demonstration with any motor vehicle shall apply to the appropriate authority for such events, Motor Sport South Africa (MSA) and comply with its rules, regulations, standards, ethics and codes of discipline.
- c. Any participant, competitor, driver, rider or demonstrator shall be appropriately accredited, approved or licensed by MSA and comply with its rules, regulations, standards, ethics and codes of discipline.
- d. The organiser of a special air event where any motor sport, motor racing, competitive or high-speed demonstration with any motor vehicle shall appoint an appropriately approved, accredited and rated motor sport safety official(s) as determined by MSA.
- e. For Further information or assistance contact Karin Britton from MSA on

Note: Kindly note that certain types of motorsport may not be recognised and accredited by MSA.

CHAPTER 6 - PILOT DISPLAY COMPETENCY

1. General

In order for any pilot (other than SAAF pilots flying SAAF aircraft) to fly at a Special Air Event or Airshow, the pilot must hold a valid Display Authorisation issued by SACAA.

2. Display Authorisation Examiners (DAE)

- a. SACAA shall appoint or authorise a person or body of persons to conduct such examinations or tests, as it may specify and approve a person or body of persons as qualified to furnish reports to SACAA.
- b. Such persons are known as Display Authorisation Examiners (DAE).
- c. The body of persons to recommend the DAE's to SACAA are known as the Display Authorisation Committee or DAC.
- d. SACAA will refer any pilot who is seeking a DA to a DAE in his discipline and area.
- e. A list of approved and current DAE's may be obtained from SACAA.

3. Requirements

- a. To be nominated as a DAE an individual must have received a recommendation from an organisation associated with a particular display discipline, or from another DAE and recommended by the DAC.
- b. The sponsor must have personal knowledge or equivalent experience acceptable to the DAC, hold a valid pilot's license with normally a minimum of 1000 hours as pilot in command or equivalent experience acceptable to the DAC.
- c. Normally be an active display pilot who has participated in at least 4 displays or aerobatic competitions within the previous 12 months at SACAA approved SAE's, or SAC approved competitions, unless proof of a recent military rating can be provided.

4. Responsibilities and Limitations

- a. A person who is approved as a DAE is authorised to evaluate a pilot's display competency and submit a report for SACAA on the operations form (appendix B) in his area of competence and restrictions.
- b. If subsequent to the initial grant of a DA it is necessary to recommend an amendment or revocation of the display authorisation, then this should be done in writing to SACAA and/or the recommendations of the DAC.
- c. Any pilot who is denied a recommendation by a DAE may appeal directly to SACAA in writing who may accept the DAE recommendation, or at their discretion recommend an alternate validation by another approved DAE.
- d. Similarly, where a DAE has validated and recommended the issue of a display authorisation to the SACAA, the SACAA reserved the right and duty of the final decision and may reject the recommendation of the DAE.
- e. When a DAE has prepared a report recommending issue of a DA this should be forwarded directly to SACAA for approval and issuing of a DA rating card.

- f. Individuals who are appointed by SACAA as DAEs may continue to conduct display competency evaluations if they remain current in air display activity.
- g. If it becomes necessary to remove an evaluator from the list of DAEs due to inactivity or deficient performance, then SACAA will give notification in writing explaining the reason for such termination.
- h. Appointments are for a maximum of 12 months terminating on 31st December each year.
- i. All DAE's shall receive a copy of and familiarise themselves with the SACAA SAE Handbook.
- j. All DAE's are the appointed and recognised subject experts on display authorisations for the SACAA and shall act and conduct themselves in accordance with the objectives and safety standards as determined by SACAA.

5. Display competency demonstrations

- a. In order to establish a standardised evaluation of all pilots who request a DA the following guidelines will be used by SACAA and DAEs for the issue and renewal of DA's

6. Documentation

- a. The DAE shall inspect the applicant's logbook to determine total flying experience and skill, display experience and skill, aerobatic experience and skill or other relevant experience, including total time on the aircraft type that will be used in the flight demonstration.
- b. Check the applicant's pilot licence, to enable aircraft types, groups or categories to be included in the DA.
- c. Check the aircraft documentation including the certificate of airworthiness or authority to Fly, certificate of registration and aircraft radio station licence.
- d. If the aircraft is operated on any alternative system of certification then all relevant documents should be checked.

7. Examination

- a. The DAE should perform a confirmation of knowledge, check and discuss the;
 - i. weight & balance
 - ii. loading limitations
 - iii. airframe and engine operating limitations
 - iv. "G" load restrictions
 - v. any other operating limitations that are applicable to the demonstration aircraft.
- b. Discuss and determine the applicants;
 - i. personal motivation and attitude,
 - ii. philosophy
 - iii. reasons for applicant's wish to obtain a DA.
- c. Include in the discussion common cause of air display accidents.

- d. Require the applicant to describe the sequence of the display that he intends to demonstrate.
- e. Discuss the;
 - i. logic of his sequence,
 - ii. energy management of manoeuvres,
 - iii. the planning of the manoeuvres in relation to the aircraft limitations,
 - iv. the effects of density altitude,
 - v. the effects of surface and upper winds and how to adjust the sequence to compensate for external constraints.
- f. Discuss the applicant's emergency planning for items such as awareness and avoidance or inadvertent stalls/spins, engine or system failures, key heights and speeds and actions if these are not achieved and changes in the weather during the display.
- g. Discuss the pilot's responsibilities at a formal display pilots safety briefing and on receipt of any written brief
- h. The DAE should determine the applicant's familiarity and knowledge of limitations imposed by the pilot's licence.
- i. The actions necessary to maintain a valid pilot's licence and DA.
- j. The minimum separation standards between the crowd line and the display line(s)
- k. Mandatory requirements to adhere to minimum heights specified.
- l. The need to establish clear visual signals for the control of any display in the event of radio failure together with the need to observe extra precautions while starting or taxiing at an air display

8. Pre-flight Inspection

- a. The normal pre-flight inspection is to be carried out before each display with special emphasis on the following areas:
- b. Fuel and oil adequate for the planned flight with contingency reserve,
- c. Aircraft structural integrity and freedom of flight and engine controls,
- d. Thorough check for loose objects in the cockpit and elsewhere in the aircraft,
- e. Parachute, if carried, and emergency equipment inspection, repack within date,
- f. Altimeter setting to proper reference,
- g. Planned use of transponder if applicable,
- h. Emergency door or canopy releases inspected for proper operation and security,
- i. Safety precautions and checks on ejection seats, pins and explosive canopy release, ensure emergency crew and the relevant officials are briefed on their locations and operations.
- j. Ensure that a nominated crew member or official has the ejection seat pins during flight and understands their use and how to secure the aircraft.

9. Flight demonstrations

- a. At the discretion of the DAE, pilots who are demonstrating aerobatic manoeuvres for the first time may be required to conduct an initial flight at or above 1000 feet AGL before demonstrating at such lower height as may have been requested.
- b. Evaluation criteria must include:
 - i. precision of manoeuvres,
 - ii. orderly execution of planned sequence,
 - iii. airspeed and height control,
 - iv. ability to remain within the display area and to conform to display axis separation minima,
 - v. ability to compensate for wind drift,
 - vi. ability to adjust sequence to accommodate unplanned constraints,
 - vii. ability to handle emergencies during air display performances,
 - viii. maintenance of planned sequence slot times and duration.

10. Spin Training and Departure Awareness

- a. An initial application for a DA that includes an authorisation for display aerobatics must include evidence that the applicant has received appropriate spin training in addition to having achieved a minimum of 70% or higher in the sportsman's class for competition aerobatics at a SAC approved event.
- b. Additionally, the applicant must show that he is current on standard spin entry and recovery techniques preferably on the aircraft type flown during the evaluation, if permitted. DAE's are to indicate that these conditions are satisfied.
- c. If the DAE is not satisfied that the applicant is sufficiently aware of, or current in, spin entry and recovery techniques he is to restrict the recommendation to non-aerobatic displays until the applicant has received additional appropriate training.
- d. During the oral examination of initial candidates and the renewal of existing DAs, the DAE is to discuss the symptoms of, the avoidance of and the recovery from inadvertent departure from controlled flight.
- e. Reference is to be made to the characteristics of the aircraft flown in the demonstration.
- f. Potential danger areas associated with aerobatic displays and the techniques to avoid them are to be reviewed.

11. Reporting by DAE's

- a. Following an evaluation for initial issue of a DA or the renewal or upgrade of an existing DA, the DAE is to make a written recommendation and report to SACAA on the appropriate form.
- b. Where a candidate fails to achieve the required standard for either the initial issue of a DA or the renewal or upgrade of an existing DA, the DAE is to ensure that the application form is returned to SACAA clearly indicating that the applicant has failed, stating reasons for the failure and recommending any remedial action such as further training.
- c. The candidate is to contact SACAA prior to arranging any further evaluation.

- d. DAE's should actively monitor display pilot standards throughout the display season.
- e. Where a DAE perceives a lapse in safety standards, they shall bring the matter to the attention of SACAA and in turn to the display pilot.
- f. How the matter is handled from this point is at the discretion of SACAA in cooperation with the DAC.
- g. Where a serious breach has occurred the DAE may withdraw his recommendation of the display authorisation to the holder of the DA and shall report the matter to SACAA ASAP.
- h. In the latter case a clear statement of the perceived breach, with supporting evidence if possible, will be required by SACAA before considering any action.
- i. The form incorporates a check list to assist DAEs in conducting evaluations.

12. Limitation

- a. A 2000ft AGL height limitation for a specified number of displays may be placed on any aerobatic DA issued to a new air display pilot.
- b. This limitation may be removed, and a lower base height approved if there is evidence that the sequence has been successfully performed at three or more air displays

13. Issue of the display authorisation

- a. A DA consists of a DAE validation and recommendation, and a SACAA approval and issue of the DA certificate.
- b. The categories, groups or specific aircraft types authorised, the type of display sequence authorised, the level of formation authorised and the minimum altitude for aerobatics or flypasts if authorised will be specified in the DA

14. Recency

- a. A DA requires that a display pilot has flown a minimum of four displays in a calendar year as signed by the FDD in the DA booklet in the preceding year, of which at least one display shall have been in the preceding three (3) months or provides proof of having practiced the intended display routine in the preceding month and can be verified by an FDD or DAE.
- b. A logbook entry signed by an FDD, FDSO or DAE is sufficient proof that the display sequences or practices have been flown.
- c. Failing the above recency requirements, a display pilot shall in addition to practice flights perform a validation flight to an appropriately rated DAE, or in the case of flat (non-aerobatic) displays to an FDD no less than two weeks prior to the day of the event
- d. It is emphasised that the above requirement should be viewed as a minimum requirement for display recency and that pilots are encouraged, particularly during pre-season work up, to undertake enough practice to ensure that a sufficiently high standard of safety is maintained.
- e. If the display sequence has not been practiced recently, the pilot should set himself appropriately higher minima, for practice or actual display purposes, until such time as full currency is regained.

15. Validity

- a. A DA will be issued for a period not exceeding 12 months and is renewable annually.

16. Renewal

- a. The renewal of a display authorisation shall require an up to date and signed DA logbook; the test being conducted by a suitably qualified DAE.
- b. In the case of an expired DA, where no upgrade of the privileges is being sought, the certificate of test can be revalidated and signed by the DAE, then reissued by SACAA.
- c. Approval of the DA Certificate of Competence by a suitably qualified DAE.
- d. Where multiple aircraft types, groups or categories are held on a DA it is not necessary to renew each individual aircraft type or category if they are similar in their operation and performance and flown in a similar sequence.
- e. The DA is renewed by demonstrating on any one of the authorised aircraft types, groups or categories.
- f. The recency rules do however apply to individual aircraft types or categories.

17. Display criteria

- a. The actual construction of a display sequence will vary considerably from pilot to pilot because of various factors such as experience and competence levels, aircraft capabilities, requirements to deal with varying weather conditions and display sites etc.
- b. For the novice, early guidance shall be sought from a DAE or other experienced display pilot.
- c. The following paragraphs, whilst not exhaustive, are intended to give display pilots some basic guidance in various specific areas

18. Vintage or unique aircraft

- a. Owners, operators, pilots and DAEs are encouraged to take into consideration the age, the rarity, value and the need for continued preservation of aircraft when developing display sequences.
- b. In general terms, the limitations placed on the operation of the aircraft, either generally or in a display situation, should show a level of sympathetic appreciation of these factors whilst allowing the aircraft to be safely flown and displayed.

19. Displaying multi-engine aircraft

- a. Deliberate asymmetric flight as part of a display routine is not permitted at civil flying displays.
- b. Emergency asymmetric handling problems, particularly with some of the older historic aircraft types, are a potential source of difficulties during a display in these aircraft.

- c. Whilst it is impossible to give specific guidance on minimum speeds below which a multi-engine aircraft should not be flown in display, the following should be taken into consideration during the planning process and the actual flying.
- d. A multi-engine aircraft should not be flown below a speed which it is possible to achieve a positive rate of climb, without change of configuration, should any engine fail to respond to an acceleration demand.
- e. DAEs are to ensure, during initial evaluation or renewal, that pilots holding DAs covering multi-engine types have made adequate preparation for asymmetric difficulties during their display planning.

20. Crowd separation distances – on crowd wind

- a. During any display, pilots are to be aware of, and make due allowance for, any on-crowd wind component.
- b. FDD's shall brief pilots to adjust their display line for any on crowd wind component.
- c. Note that if flying towards the crowd, but inadvertently too close to turn safely, an early decision to terminate the manoeuvre and climb, even if this involves the final resort of overflying the crowd, is preferable to risking an overstress or departure from pulling too hard, the display shall then be aborted.

21. Minimum heights during displays

- a. All aerobatic manoeuvres, including inverted flypasts and manoeuvres which involve pulling through the vertical are to be executed above the approved aerobatic display height.
- b. Descent below the approved aerobatic display height to the approved fly-by height is permitted once certain of capturing the aerobatic display height.
- c. Slow speed, high angle of attack flypasts is regarded as aerobatic manoeuvres from the minimum height point of view.

22. Spinning as part of a display

- a. Pilots are only permitted to include spinning as part of their display sequence if they hold the appropriate aerobatic DA authorisation and the aircraft is approved for aerobatic manoeuvres.
- b. When developing a display sequence that includes spinning the pilot needs to determine the spin parameters that will ensure adequate safety margins are maintained during every spin.
- c. Specifically, the following should be considered when determining the minimum spin entry height:
 - i. spin characteristics of the aircraft including ability to recover consistently,
 - ii. height lost per spin turn,
 - iii. height lost during normal recovery,
 - iv. margin required to allow for inconsistencies in either the aircraft or on the part of the pilot.
- d. DAE's are to ensure, during initial evaluation or renewal, that pilots holding sportsman or better aerobatic ratings have made adequate provisions for any spinning carried out during their display planning

23. Formation flying

- a. In order to take part in any formation display the pilot must hold a DA permitting formation flying in the required category.
- b. Formation DA authorisations are broken down as follows:
 - i. Where close formation flying is permitted, it will be limited to close formation flying with up to 4 aircraft, or
 - ii. Close formation flying with unlimited numbers of aircraft
 - iii. Where close formation leading is permitted it will be limited to close formation leading with up to 4 aircraft; or
 - iv. Close formation leading with unlimited numbers of aircraft
 - v. Where tail chasing is permitted it will be limited to tail chasing with up to 4 aircraft; or
 - vi. tail chase leading with unlimited numbers of aircraft; or tail chase leading
- c. Tail chase authorisations will not be issued unless close formation authorisations are already held by the applicants and recommended by the DAC as part of the application.
- d. Tail chase leading authorisations will not be issued unless a tail chase authorisation and formation leading authorisation are already held by the applicant and recommended by the DAC as part of the application.
- e. Applications for formation DAs will need to specify the level of authorisation recommended in the 4 categories.
- f. DAEs will need appropriate evidence of competence before recommending a specific formation authorisation.
- g. Extensive formation experience will be a pre-requisite before any of the unlimited authorisations can be considered.

24. Close formation

- a. Close formation is defined as when an aircraft is flying in close proximity to another aircraft in such a manner as to require the following aircraft to take all external visual references solely from the lead aircraft.
- b. Close formation leading is defined as being totally responsible for all aspects of the safety, terrain clearance, positioning and handling for a number of aircraft that are formatting/forming in close proximity to the lead aircraft.
- c. The size of the planned formation dictates the DA requirements of all the participants when all the aircraft are to be flown in close formation.
- d. Any close formation group with more than 4 participating aircraft requires all pilots, including the leader, to hold an unlimited numbers formation/leader DA as appropriate.
- e. However, where a large formation is planned with elements consisting of four, or less, aircraft formation/leader DA authorisations may participate subject to the following limitations,
 - i. the overall formation leader holds an unlimited numbers formation leader DA
 - ii. individual formation element leaders hold, at a minimum, 4 aircraft formation DAs
 - iii. the elements are flown in trail (line astern) with enough separation between each element to enable each element leader to clearly define his own flight path and, if necessary, for him to disengage his element from the formation without endangering other aircraft.
- f. The separation required will depend on individual aircraft characteristics but, as a guide, should be in order of 100 to 200 metres between the rear of one element and the lead of the next element

25. Tail chase

- a. A tail chase is defined as a number of aircraft following a leader in loose proximity, either in line astern or offset to one side in a “fighting battle or echelon” formation, whilst the leader carries out a series of manoeuvres of an aerobatic or semi-aerobatic nature.
- b. Each aircraft in turn will generally follow the leader’s flight path but retain a high degree of individual decision making over the exact path taken.
- c. Separation distances may vary from close to 200 metres.
- d. Mock combat, or dogfight displays, whilst not necessarily following the above definition of a tail chase, do require many of the same skills such as assessment of closing speed and angle off.
- e. Consequently, these types of displays are to be treated as tail chases from the DA point of view.
- f. An essentially straight and level flypast of aircraft in loose trail (100 metres plus) with manoeuvres restricted to gentle turns is not a tail chase and a formation/tail chase DA is not required for this type of display.
- g. To participate in a tail chase a pilot must hold a tail chase DA authorisation.
- h. To lead a tail chase a pilot must hold a tail chase leader DA authorisation.
- i. Tail chasers are restricted to a maximum element size of 4 aircraft.
- j. However, more than one element may participate in a tail chase with the leader of the rear element(s) deciding the specific flight path for their element under the overall direction of the main leader.
- k. Where more than one element is involved in the tail chase, each element leader must hold a tail chase leader DA authorisation and, additionally, the overall formation leader must hold an unlimited formation leader DA authorisation

26. Requirements for the issue of a formation da

- a. Only DAEs who are appropriately approved for formation evaluations may mentor, validate and then recommend an applicant for the inclusion or upgrade of a formation authorisation on a DA.
- b. DAEs hold the following levels of formation approval;
 - i. basic formation authorisation – allows these DAEs to recommend the issue or upgrade of formation DA, as a member or as a leader, with up to 4 aircraft but not tail chasing unless specifically authorised,
 - ii. advanced formation authorisation – allows these DAEs to recommend the issue or upgrade of any level of formation DA,
 - iii. DAEs are to satisfy themselves that the DA applicant has completed a period of formation training prior to being assessed for a formation DA,
- c. The level of formation authorisation recommended will be dependent on the previous formation experience level of the applicant, the extent and level of the training carried out and the applicant’s performance during the evaluation

27. Close formation flying with up to 4 aircraft

- a. Before a DAE recommends an applicant for a close formation flying with up to 4 aircraft authorisation, the applicant must demonstrate the following minimum standards during an evaluation.
- b. During the pre-flight briefing the applicant must show a clear understanding of the basic principles of formation flying including;

- c. The principles of safely joining into close formation; the safe escape manoeuvre if the join-up is incorrect; the break from close formation and the re-join,
- d. The effects of inertia; assessment of closing speed, throttle handling (if appropriate, the differences between jet and piston engine handling and response must be appreciated by the applicant) and flying control effects,
- e. Clear definition of the position cues for the three basic formation positions – echelon starboard, echelon port and line astern – in relation to the aircraft being flown in the evaluation,
- f. Procedures for moving safely from one formation position to another, the executive commands for making a change of formation; the safety aspects and sequence of moving formation when more than two aircraft are involved,
- g. The need for regular monitoring of aircraft parameters, particularly engine temperatures and pressures and fuel contents; the timing of these airmanship checks,
- h. aircraft emergency procedures and handling when in a formation particularly where more than two aircraft are forming,
- i. during the formation flight evaluation of DAE should either fly as a formation leader, or if the applicant's aircraft is suitably equipped, with the applicant.
- j. It is recommended that initial formation manoeuvring be carried out at medium altitude to confirm the applicant's ability.
- k. However, before a recommendation is made representative manoeuvring must be carried out at display height.
- l. The flight should consist of at least two aircraft and should cover the following minimum requirements;
 - i. if appropriate, a pairs take-off in echelon.
 - ii. Manoeuvres in the three basic formation positions.
 - iii. Within the constraints of the aircraft limitations and performance, the manoeuvres should include straight and level, climbing, descending and turning flight at high and low speeds and power settings; steep turns with moderate "G" loading (2-3"G"); wing-over's to at least 90° of bank with large speed and loading variations and, if required, formation aerobatics,
 - iv. change of formation position in straight and level flight and moderate bank
 - v. turns, breaks and re-joins from both echelon positions in straight and level
 - vi. flight and moderate banked turns,
 - vii. an emergency break during manoeuvre,
 - viii. confirmation that the applicant is carrying out airmanship checks, (fuel calls etc)
 - x. a close formation run and break into the visual circuit.

28. Close formation leading with up to 4 aircraft

- a. An application for a formation leading authorisation will not be considered unless the applicant already holds, a formation member authorisation
- b. Before a DAE recommends an applicant for a close formation leading with up to 4 aircraft authorisation the following must be considered;

- i. the applicant must have adequate experience in flying as a formation member in addition to suitable training in formation leading,
 - ii. the applicant must be aware of his/her responsibilities as a leader specifically in relation to the need to fly smoothly and with consideration for the other formation members,
 - iii. the use of power by the leader and the power margins, the leader needs to allow for other formation members, particularly in manoeuvre and where the formation contains more than one aircraft type,
 - iv. the leader's responsibility for terrain clearance, lookout and positioning relative to the display line for all formation members,
 - v. actions in the event of an emergency,
 - vi. the applicant must brief and lead a formation with the DAE acting, ideally, as the applicant's wingman.
- c. The briefing must cover all required aspects, particularly safety precautions, in a logical manner, the in-flight portion of the evaluation must include an assessment of the leader's abilities in all normal and display related manoeuvres including, if appropriate, formation aerobatics.

29. Tail chasing with up to 4 aircraft and tail chase leading

- a. An application for a tail chase authorisation will not be considered unless the applicant already holds, a close formation member authorisation.
- b. Before a DAE recommends an applicant for a tail chasing with up to 4 aircraft authorisation the applicant must demonstrate the following minimum standards during an evaluation;
 - i. during the pre-flight briefing the applicant must demonstrate awareness of the following areas,
 - ii. the various formation positions usually flown – trail or fighting battle, how formation position can be maintained by use of lead and lag and the need to follow the leader flight path without over anticipating the manoeuvre,
 - iii. assessment of separation distances and closing speeds, avoidance of, the dangers of, and action in event of hitting slipstream,
 - iv. loss of leader (or aircraft ahead) procedure – safe area, radio call, no re-join until contact with all other members and they are aware of the re-joining aircraft,
 - v. The applicant must successfully carry out a realistic tail chase at medium level and at a representative display height during the in-flight portion of the evaluation,
- c. An application for a tail chase leading authorisation will not be considered unless the applicant already holds, a tail chase member authorisation and a formation leading authorisation.
- d. Before a DAE recommends an applicant for a tail chase leading authorisation the applicant must demonstrate the following minimum standards during an evaluation;
 - i. during the briefing the applicant must demonstrate awareness of the pertinent leadership factors such as maximum speeds and power to be used, maximum "G" loading, type of manoeuvres used in tail chasing,
 - ii. consideration for the other formation members and the emergency and loss of leader procedures,
 - iii. the applicant must demonstrate the ability to satisfactorily lead a representative tail chase

30. Unlimited formation authorisations

- a. Before any unlimited authorisation is recommended, the applicant must have extensive previous formation experience and must have demonstrated a consistently high standard of ability over several display seasons.

31. Jet formation authorisations including ex-military jets

- a. Before any Jet formation authorisation is recommended by at least two appropriately rated DAE's who shall ensure that the applicant has received extensive jet formation training and flying experience, or has received a recognised military formation approval, and must have demonstrated a consistently high standard of ability over several display seasons.

NB: The minimum standards for this rating still needs further development and each applicant will be considered on a case-by-case basis with the written recommendation from the DAC before approval.

32. Jet aerobatic formation authorisations incl ex-military jets

- a. Jet aerobatic formation displays are not permitted.

Note: The minimum standards for this rating still need further development. (Create appropriate standards, send to Display Authorisation and Airshow South Africa committee for review and recommendation)

CHAPTER 7 - SPORT & RECREATIONAL AVIATION SINGLE DISCIPLINE EVENTS

1. Single discipline event with categories of aircraft flown by members of a particular ARO, club or association
 - a. Any single discipline event organised and hosted by an approved ARO, club or association, for its members, shall submit a detailed event Handbook of their intended events or competitions to SACAA for consideration and approval.
 - b. Categories of single discipline events;
 - c. Those groups or categories of aircraft flown by its members as per an ARO, club or association's approved event Handbook, such as:
 - i. Microlight aircraft, or
 - ii. Light Sport Aircraft, or
 - iii. Gyrocopters, or
 - iv. Gliders, or
 - v. Touring motor gliders, or
 - vi. Hang gliders, or
 - vii. Para gliders, or
 - viii. Parachutes, or
 - ix. Radio controlled model aircraft, or
 - x. Hot Air balloons, or
 - xi. Helicopters, or
 - xii. Sport aerobatics, or
 - xiii. Rocketry, or
 - xiv. Non type certificated aircraft.
 - d. In the case where an ARO, club or association, has an approved event Handbook specifying their discipline air events or competitions, they shall plan such events in accordance with the procedures and safety standards contained in an approved manual of procedures.
 - e. The ARO, club or association, shall notify the SACAA of their intended event within the prescribed timeframe and format.
 - f. The SACAA if satisfied shall notify the ARO, club or association that they have no objection to the intended event taking place.
 - g. In the case where an ARO, club or association does not have an approved Handbook specifying their disciplines, air events or competitions, they shall apply in full for a special air event approval as per the requirements of this Handbook.
 - h. Any event held under the conditions laid down in this document must be subject to the direct authority & supervision of an approved flight safety officer who is nominated by the ARO, club or association, once they have passed an approved aviation safety officer training course.

- i. The flying safety officer may delegate certain duties but retains overall responsibility for safety at the flying event.
- j. It is the responsibility of the event organiser, the flight display safety officer and the pilots of the participating aeroplanes to ensure that the planned activity does not infringe airspace restrictions, minimum distances and height from the other participants or members of the public as contained in this manual.
- k. Facilities must be provided for the booking in and briefing of pilots on all rules laid down for participation in the event and such rules must be in writing and available prior to the event in accordance with the organisations approved event Handbook.
- l. Appropriate emergency service providers, disaster management and evacuation plan as required in this manual shall be available, with communication to outside services arranged to deal with any emergency.
- m. If any members of the public other than direct members of the ARO, club or organisation, are permitted access to the event irrespective if an entry fee is charged or not, they shall be considered as spectators and the event shall be considered a special air event, therefore, all legislation, regulations and bylaws applicable to the scale and complexity of the intended event shall be adhered to.
- n. Notwithstanding the provisions of k) above, this manual does not release or absolve an organiser of an ARO, club, or organisation air event from complying with any other applicable legislation, law, bylaw or regulation that may be related to their intended event.
- o. If a landing or take-off is to be made at the site of the event, the area available must be adequate for the intended operations, considering the aeroplane size, weight and performance, weather conditions and the ability of the pilots.
- p. The minimum operating area provided shall be suitable for the intended operations, with all flight, approach and departure paths remaining clear of buildings, persons, vehicles, trees and overhead electricity or telephone cables.
- q. A suitable forced landing area is to be available and accessible throughout the event.
- r. Each pilot taking part in a navigation rally, race, or any other contest, is to hold at least a valid PPL or NPL; and must have gained at least 100 hours as pilot in command of aeroplanes or microlight aeroplanes, of which at least 50 hours must be on the category of aircraft to be flown and of which at least 10 hours must be on the type of aircraft to be flown at the event.
- s. In this regard a category is defined as being either a weight shift microlight, conventional controlled microlight, Gyro, LSA, Glider etc.
- t. Organisers are to ensure that each aeroplane taking part in the event is registered and is displaying the correct registration markings and has a valid C of A or Authority to Fly.
- u. Engines may be started or run only in areas separated from the public by a suitable solid barrier.
- v. Clearance to a specified holding point clear of the take-off area is to be the responsibility of an authorised marshal or, where ATC/AFIS is in operation, given by the controller or AFIS.
- w. The decision when to take-off remains the responsibility of the pilot except where air traffic control is available.
- x. The safety officer, ATC or AFIS as applicable shall ensure that the number of aircraft in the circuit at any one time does not exceed a safe number.
- y. The flying safety officer must ensure that all aircraft remain within or outside, as the case may be, the determined safe zone, flight line and minimum heights.
- z. No local area flying is to be permitted during competitive events taking place on the site.
- aa. Cross wind limitations are to be those stipulated in the manufacturer's handbook, however, where no published limits exist, the maximum acceptable cross wind component is to be 12 knots.

- bb. No aerobatic manoeuvres are permitted. Maximum bank and pitch angles are as prescribed in the permit to fly or other relevant aircraft document, but in any case, must not exceed bank 45° pitch 30°.
- cc. No aircraft may exceed a manufacturer's published limitations.
- dd. Intentional stalls at events are prohibited.
- ee. At any other event where aircraft are to be flown, displayed or used in a competitive manner where the public is present, similar requirements to airshows will apply.
- ff. Event organisers should carefully note the definition of an airshow, and the advice given.

2. Hot air balloon events

2.1 Legal requirements

- a. It is unlikely that a hot air or a gas balloon will be required to carry out an air display in the normally used sense of performing unusual manoeuvres.
- b. As balloon races or contests are exempt from the requirements, the display element of balloon events is usually restricted to tethered flights at an advertised event open to the public.
- c. Event organisers are reminded that any additional display content, such as airships, powered paragliders, microlights etc, even though the main purpose of the event is a balloon competition or rally the event shall be considered as a multi-disciplinary special air event, and a formal application shall be submit to SACAA within the prescribed format and time frames.
- d. Similarly, balloon items as part of a conventional flying display must be notified on the application form and included in the count of items.
- e. Notification of a balloon event as per the applicable ARO's approved event manual of procedure shall be made to SACAA in the prescribed format and timeframe.
- f. If an event includes a flying display element, formal application shall be made to SACAA in the prescribed format and timeframe.
- g. The following specific balloon event considerations augment the general guidance given in the aeroplane chapters and should be read in conjunction with these.

2.2 South African balloon club guidelines

- a. At events organised by, or in association with BAFSA affiliated organisations requiring support or advertising, the following points should be noted.
- b. An event held under the guidelines contained in this document must be subject to the supervision of a flying director and a safety officer who is nominated by the organisers.
- c. The flying director may act as the safety officer if independent from the event organiser.
- d. The safety officer should be involved in the planning stages of the event and should be present on site during all planned launch and inflation times, except that he may delegate specific duties but retain overall responsibility for the event, including the right to cancel a planned flight due to meteorological or any other reasons bearing on safety.
- e. Except where the safety officer has banned flying, the decision to take-off or not remains with the pilot.

- f. It is the responsibility of the event organiser, the flying director, the safety officer and the participating pilots to ensure that the planned activities do not infringe airspace restrictions.
- g. If at the planning stage, it seems likely that flights may affect an aerodrome then liaison should be established with ATC/AFIS at this stage.
- h. For mass ascents, the use of transponders on some balloons should be considered so that ATC has an indication of the track and extent of the activity.
- i. The relevant ATC/AFIS should also be informed of actual launch time and again when all balloons have landed.
- j. Rules governing the event must be made available, in writing and in accordance with the organisations approved event Handbook prior to the event.
- k. These must include the limits of acceptable weather conditions for flights, including tethered flights, to be made.
- l. Variations in rules not pertaining to safety may be notified by means of a pilots' briefing.
- m. Adequate emergency services and equipment should be available on site to deal with any incidents.
- n. Prior consultations with outside services should be made and communications established with them on the day of events, to facilitate their rapid response in the case of an emergency.
- o. Event organisers are particularly reminded that a large balloon meet necessitates effective control that will require adequate assistance for the safety officer.
- p. An event should not take place unless the safety officer and event organiser ensure that a level of support is provided in the areas of safety and landowner relations appropriate to the number of balloons participating in the event.
- q. Mass take offs should only take place in wind speeds of less than 8 knots on the surface.
- r. In winds exceeding 8 knots, take offs may be staged in waves to maximise the separation of balloons.
- s. Prior to take off, pilots must ensure that their projected track out of the site is clear of balloons either on the ground or the air. A check for balloons overhead must be made immediately before take-off, either by a member of the crew or by a marshal appointed by the safety officer.
- t. If the wind speed exceeds 5 knots the crowd should be separated from the balloons in such a way that in the event of a change of wind direction prior to launching no part of a balloon will come into contact with the crowd.
- u. All free and tethered flights must be made within the criteria contained in the manufacturers' flight manuals for the specific balloon.
- v. Refuelling should take place in an area to which the public does not have access.
- w. The propane tanker of fuel should be separated from any large gathering of people by at least 100 metres and sited to avoid drainage of propane towards such an area.
- x. Competition tasks should not be set in such a way that they cause large concentrations of balloons in the proximity of livestock or sensitive areas.
- y. No event shall be held without prior consultation with the local region.
- z. Officials and commentators must be briefed by the safety officer on the contingency plan to be followed in the event of a fire or other emergency on the launch field.

3. Air races, time and navigation rallies and pylon races

3.1 Air races

- a. Although air racing and rallies has its own manual of procedure and code of conduct, and should be consulted in advance, much of the requirements given in the earlier chapters of this document remain relevant.
- b. Where an air race, navigation event, fun rally, pylon race or any other competitive event is organised or planned by a person, club or organisation other than an approved ARO with an approved event manual of procedures for such events or competitions, the organiser/applicant shall submit a formal application for approval to SACAA no less than 150 days prior to the event, such applications shall be accompanied by a detailed event manual of procedure and operations plan for the intended competition.
- c. SACAA may require additional supporting documentation prior to considering the approval of such events.
- d. Should the race/rally route pass through, over or close to either controlled airspace or major airports it is essential that proposals are discussed with SACAA and/or the authority responsible for the management of the specific airspace prior to any firm arrangements being made.
- e. These discussions should be initiated at least 160 days prior to the date of the event.
- f. The air race will almost certainly require co-ordination with other airspace users; therefore, details should be submitted to SACAA at least 150 days prior to the date of the event
- g. Formal Applications for approval or exemptions must reach SACAA at least 150 days before the event

3.2 Air rallies

- a. Application shall be made to CAMU for FUA and the NOTAM office for approval and to enable the publication of a NOTAM,
- b. In the event of controlled airspace or change of airspace, application shall be made to SACAA prior to the AIRAC cycle.
- c. Whilst certain of the requirements discussed earlier in this document may not be applicable to rallies, the attention of organisers is drawn to observe the minimum recommended safety standards, and to the need for full written briefings to participants, including the arrangements for notifying a cancellation of the event.
- d. If weather conditions cause a rally to be cancelled, every possible means should be used to ensure that participants are informed before take-off or en-route to avoid dangerous congestion at the destination aerodrome.
- e. The aerodrome management and ATNS/CAMU at destination should be consulted about the proposed event so that appropriate safety arrangements may be made and conflicts with other traffic avoided.
- f. The rally will almost certainly require coordination with other airspace users; therefore, details should be submitted to SACAA at least 150 days prior to the date of the event
- g. If an event is intended to attract more than 50 aircraft it is essential that proposals are discussed with the SACAA prior to any firm arrangements being made.
- h. These discussions should be initiated at least 160 days prior to the date of the event.

4. Display parachuting

4.1 LEGAL REQUIREMENTS

- a. This section is included for the assistance of the event organiser and safety officer.

- b. Display parachuting may be arranged as an additional attraction at many types of events including flying displays, or as an event on its own.
- c. Parachute display jumps may be performed by pro-rated or equivalent display rated jumpers, or jumpers approved by the SACAA at an event irrespective of it being a special air-event, fly-in, and that has been approved by the SACAA, and the applicable ARO shall not be considered to be a multi discipline event, whereas any parachute jump at a SAE, fly-in, or single discipline with non-pro-rated or equivalently rated parachute jumpers shall be considered to be part of a multi discipline event.
- d. Display parachutists must be in possession of a valid parachuting display rating or “PRO Rating” and display jump approval issued by the SACAA.
- e. Note! that the parachute dropping aircraft are NOT permitted to execute a low pass after the drop, unless an approval has been issued by the FDD/FDSO, and the pilot holds a valid DA, or has been briefed and validated by the FDD/FDSO.

4.2 Liaison and reconnaissance

- a. An experienced team member will need to visit the proposed landing area in order to determine existing and anticipated hazards.
- b. At this visit the following should be considered;
 - i. weather minima,
 - ii. dimensions of the landing area required by the team,
 - iii. arrangements for crowd control,
 - iv. location of overshoot/undershoot areas,
 - v. buildings and power lines,
 - vi. locations of spectator enclosures, ensuring spectators - especially children - are to be kept away from landing areas,
 - vii. car parks,
 - viii. marquees and other hazards (e.g. cranes used for bungee jumping)
 - ix. first aid
- c. The Safety Officer must ensure that the display team is informed of any other aviation-related activities known to be taking place at the event or nearby (e.g. helicopter pleasure flights, tethered balloons, model aircraft etc.)

4.3 The landing area

- a. Where the designated landing area is on the display side of the crowd line, no part of that area should be closer than 5 metres and parallel to the crowd line.
- b. Where the designated landing area is in an area set aside for the spectators, it should be enclosed with a barrier and no parachutist should land closer than 5 metres and parallel to any spectator

- c. The landing area should be suitably marked and should be clearly identifiable by each parachutist from the time he exists the aircraft.
- d. Parachutists shall not land toward any spectator, and their landing direction shall be parallel to or away from the crowd line or any spectators. In the case where the wind is blowing away from the crowd line or spectators and requires that parachutists land towards the crowd line, such landings shall be made and completed no closer than 30 meters from the demarcated crowd line.
- e. Parachutists shall not fly overhead the crowd line or spectators lower than 500ft AGL.
- f. Parachutists shall not perform hook turns, or steep turns of 180 degrees or more overhead or toward the crowd line, or lower than 500ft at a special air event

4.4 The Display

- a. When the display of parachuting forms part of a flying display, the PIC of the parachute dropping aircraft will require briefing by the FDD/FDSO.
- b. The event organiser is responsible for the arrangements for crowd control

10. APPENDIXES.

11. CONTINUOUS IMPROVEMENT, MEASUREMENT AND ANALYSIS

This Handbook will be verified or continuously improved on in accordance with the SACAA Continuous Improvement, Measurement and Analysis GP001.

12. ACKNOWLEDGEMENTS

The following persons and organisations have contributed towards this document and are thanked for their contributions:

- a. Air Show South Africa, for their continued support in promoting and developing airshows in South Africa.
- b. The Air Show Display Authorisation Committee, for their continued endeavours to promote and develop safety standards and accreditations of display pilots.
- c. Sports Aerobatic club, for their support and development of sports aerobatics and aerobatic display pilots.
- d. Scully Levin, for his years of dedication, support, and contributions to airshows, airshow standards and safety and the development of Display Authorisation, the Display Authorisation Examiners and as Chairman of the Display Authorisation Committee.
- e. Gen. Desmond Barker, for his continued support and contributions to airshow safety and advise during the development of this document.
- f. Stan Oliver, for his guidance in developing safety standards for airshows.
- g. Pierre Laubscher, for his research and continuous development and updates to this manual.
- h. Charlie Marias, for reviewing and assisting with the content of this document.
- i. Chris Linakis, for reviewing and editing the contents of this document.
- j. Rikus Erasmus, for his continued support and inputs to this manual and attending the European Airshow Committee meetings.

END