



**Annexure A**

**Recreation Aviation Administration of South Africa**

**Display Authorization**

**Application and Evaluation Forms**

For completion of all forms, refer to Section 13, "Completing the Evaluation Forms".

A summary of the forms that need to be completed is listed below:

For **initial** applications for a Display Authorization, complete forms:

13.1.1, 13.1.2, 13.1.3, 13.1.4, 13.1.5, 13.1.6,  
13.1.7, 13.1.8, 13.1.9, 13.1.10  
13.2.1, 13.2.2.  
13.2.3 Through 13.2.10 as applicable  
13.3.1  
13.3.2 through 13.3.8 as applicable  
13.4.1, 13.4.2, 13.4.3, 13.4.4

Pilots who wish to perform aerobatics as part of a display will need to present evidence of having received an aerobatic qualification and an aerobatic rating, as issued by the RAASA

Refer to Section 7, "Rules for Aerobatic Display Authorizations".

For **amendments** to the height limitations, type, category or discipline of a Display Authorisation, complete forms:

13.1.1, 13.1.2, 13.1.3, 13.1.4 and 13.1.5, 13.1.6,  
13.1.7, 13.1.8, 13.1.9,  
13.2.1, 13.2.2.  
13.2.3 through 13.2.10 as applicable  
13.3.1  
13.3.2 through 13.3.8 as applicable  
13.4.1, 13.4.2, 13.4.3.

For **renewals** of Display Authorizations:

Determine if you meet the requirements of Section 10, "Exemption levels for Performers".

Determine if you meet the requirements of Section 11, "Annual Renewal Criteria for Performers".

If the above criteria are met, complete form 13.1.8

If the above criteria are not met, refer to Section 8, "General Rules for Display Authorizations" and then follow the procedure for the initial application of a Display Authorization.

Record sheets 1, 2 (13.1.6) and 3 (13.4.4) must be completed and:

1. Placed on record with at the RAASA office.
2. Filed in the Candidate's Display Authorization Logbook.

**1. APPLICANT DETAILS****Form 13.1.1**

Full Name	
Home Address	
Home Telephone	
Work Address	
Work Telephone	
Mobile Telephone	
E-Mail Address	
AeCSA Membership Number	

**2. D.A.E DETAILS****Form 13.1.2**

Full Name	
Mobile Telephone	
E-Mail Address	
AeCSA Membership Number	

**3. EVALUATION DETAILS****Form 13.1.3**

Ground Evaluation Location(s) and Date(s)	
Flight Evaluation Locations(s), Date(s), Equipment Type(s) and Registration(s)	



**Record Sheet 2**

**Display Authorisation and Aircraft Types**

**13.1.6**

Specify the types on which the applicant is authorised to perform.

<b>Category</b>	<b>Types</b>
1. Sport Aerobatic Aircraft	
2. Ex-military Aircraft (prop)	
3. Ex-military Aircraft (jet)	
4. General Aviation (prop)	
5. General Aviation (jet)	
6. Vintage Airliners (prop)	
7. Airliners (jet)	
8. Veteran Aircraft	
9. Weight Shift Micro Light	
10. Three Axis Micro Light	
11. Light Sport Aircraft	
12. Towed Glider	
13. Motorized Glider	
14. Helicopter	
15. Gyrocopter	
16. Balloon	
17. Radio Controlled Aircraft	
18. Specialty Act	

Issuing Officer		Applicant's Signature	
Date		Date	
Place		Place	

**6. EXPERIENCE**

**Form 13.1.7**

This section provides the DAE with background information regarding your flying experience. Aircraft related experience is to be specified in hours. Other categories require you to specify the number of events such as jumps, races or pyrotechnic displays.

	<b>Total Events</b>	<b>Total Hours</b>	<b>Formation Hours</b>	<b>Aerobatic Hours</b>
1. Sport Aerobatic Aircraft				
2. Ex-military Aircraft (prop)				
3. Ex-military Aircraft (jet)				
4. General Aviation (prop)				
5. General Aviation (jet)				
6. Vintage Airliners (prop)				
7. Airliners (jet)				
8. Veteran Aircraft				
9. Weight Shift Micro Light				
10. Three Axis Micro Light				
11. Light Sport Aircraft				
11. Towed Glider				
12. Motorized Glider				
13. Helicopter				
14. Gyrocopter				
15. Balloon				
16. Radio Controlled Aircraft				
17. Vehicle Act				
18. Specialty Act				
19. Pyrotechnics				
20. Motor Racing				
21. Parachuting				
<b>Total</b>				

**DISPLAY AUTHORISATION RENEWAL**

**7. DISPLAY EXPERIENCE**

**Form 13.1.8**

This form must be completed if you are applying for the renewal of, or an amendment to your Display Authorization. Please specify the number of public displays in which you have participated for each of the categories and disciplines since you started performing at events and the number for the past 12 months.

This form also applies for the initial issue of a Display Authorisation for applicants that have obtained prior display experience in an Air Force or a foreign country.

	Flat Displays				Aerobatic Displays			
	Solo		Formation		Solo		Formation	
	Total	Year	Total	Year	Total	Year	Total	Year
1. Sport Aerobatic Aircraft								
2. Ex-military Aircraft (prop)								
3. Ex-military Aircraft (jet)								
4. General Aviation (prop)								
5. General Aviation (jet)								
6. Vintage Airliners (prop)								
7. Airliners (jet)								
8. Veteran Aircraft								
9. Weight Shift Micro Light								
10. Three Axis Micro Light								
11. Light Sport Aircraft								
11. Towed Glider								
12. Motorized Glider								
13. Helicopter								
14. Gyrocopter								
15. Balloon								
16. Radio Controlled Aircraft								
17. Vehicle Act								
18. Specialty Act								
19. Pyrotechnics								
20. Motor Racing								
21. Parachuting								

**Certified that the above information provided is true and correct**

**Applicant's Name:** \_\_\_\_\_

**Applicant's Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**8. TRAINING**

**Form 13.1.9**

This section should be completed if you have undertaken specific training to qualify you for the issue or amendment of the Display Authorization for which you are applying.

	Flat Displays		Aerobatic Displays	
	Solo	Formation	Solo	Formation
1. Sport Aerobatic Aircraft				
2. Ex-military Aircraft (prop)				
3. Ex-military Aircraft (jet)				
4. General Aviation (prop)				
5. General Aviation (jet)				
6. Vintage Airliners (prop)				
7. Airliners (jet)				
8. Veteran Aircraft				
9. Weight Shift Micro Light				
10. Three Axis Micro Light				
11. Light Sport Aircraft				
11. Towed Glider				
12. Motorized Glider				
13. Helicopter				
14. Gyrocopter				
15. Balloon				
16. Radio Controlled Aircraft				
17. Vehicle Act				
18. Specialty Act				
19. Pyrotechnics				
20. Motor Racing				
21. Parachuting				

Please specify the contact details of the person(s) who has trained and mentored you during this period.

**Name**

**Contact Details**

Please specify the type(s) and registration marks (if applicable) of the equipment on which the training was conducted i.e., aircraft, vehicle, type of canopy.

<b>Equipment Type</b>	
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### 3.2 GROUND EVALUATIONS

This section is to be completed by the DAE. The Applicant is encouraged to study the topics on which you will be evaluated.

<b>13.2.1 Ground Evaluation - All Categories and Disciplines</b>	
<b>Item</b>	<b>Pass/Fail</b>
<b>Review Documentation</b>	
Applicant has Air Show documentation	
Applicant's Licence to operate aircraft/vehicle/equipment	
Applicant's Medical if applicable	
Applicant has relevant Ratings from Motor Sport, Aero Club, SAPS	
<b>Review of the applicant's experience</b>	
Total Flying Time or number of Events	
Flying Time or number of years involved in the applicable discipline	
<b>Applicant Motivation</b>	
Personal Motivation	
Philosophy	
Motivation for obtaining a Display Authorization	
Understanding of past history of air show accidents and common causes	
<b>Understanding the Air Show Psychology</b>	
Display Fever	
Competition to be better than the other performers	
Danger of unplanned manoeuvres	
Effect of the ego	
<b>Air Show responsibilities</b>	
Responsibility to attend air show briefing	
Regulations that apply to aerobatics at air shows	
Regulations that apply to speciality acts	
Required documentation for air shows	
Display line versus crowd line	
Artificial show lines	
Displays over water	
Interaction with the Public, upholding the name of the industry	
Medical information provided to air show organizers	
<b>Judgement</b>	
Is fully aware of the dangers of sponsor pressure with regard to:	
Meeting air show commitments in spite of bad weather both en-route to and from the venue and at the air show site itself	
Pilot/Performer fatigue.	
Aircraft/Equipment serviceability.	
Understands what "poor judgment chains" are and has an appreciation for the fact that the further one proceeds down a poor judgment chain, the more difficult it becomes to break it.	

<b>13.2.2 Ground Evaluation – Aviation Related Categories and Disciplines</b>	
<b>Item</b>	<b>Pass/Fail</b>
Aerodynamics as they relate to the applicant's sequence such as turn performance and energy management.	
Relationship between TAS and lift, drag, turn rate and turn radius	
Relationship between IAS and TAS	
Technique for minimum altitude vertical recovery	
Understanding of induced drag and how it can be controlled	
Operation at high density altitude	
Calculation of density altitude	
Increased TAS and increased radii of turn and pull-out	
Engine performance degradation	
Ability to maintain energy	
Sequence modifications necessary to maintain energy	
<b>Evaluation of Aircraft Knowledge</b>	
Wing loading	
Power/thrust to weight ratio	
"G" Limits	
Maximum operating speeds	
The impact of special modifications existing on the aircraft	
Structural integrity and fatigue	
Use of pyrotechnics such as smoke flares	
<b>Review of the applicant's specific sequence</b>	
Logic of sequence and energy management	
Energy losing manoeuvres	
Special adjustments for high density altitude	
Blown manoeuvres or sequence interruption	
Out of control flight (Planned or unplanned)	
Aerobatics performed at night	
<b>Weather Considerations</b>	
Wind velocity, on-crowd winds, off-crowd winds	
Wind-shear	
Winds paralleling the display line	
Ceiling and visibility	
Low, flat show	
<b>Emergencies</b>	
Structural failure and aircraft control	
Engine failure	
Fire	
Communications failure	
Disorientation	
Ejection or bail-out procedures and parachute considerations	
<b>Understanding of Physiological effects</b>	
Temperature effects (High and low)	
Hydration	
Stress	
Insidious characteristics of loss of "g" tolerance	
Factors affecting "g" tolerance	
"g" induced loss of consciousness (G-LOC)	
Density altitude affects on the body	

<b>13.2.3 Ground Evaluation - Formation Flight</b>	
<b>Item</b>	<b>Pass/Fail</b>
Has undergone a course of instruction in formation flying	
Is fully conversant with the hand signals used in formation flying.	
Is fully conversant with the radio check-in procedures and the modus operandi involved in changing from one frequency to another.	
Understands the pitfalls of operating dissimilar aircraft in formation together	
Understands the principles involved when flying formation at night	
Has an appreciation for coping with blown manoeuvres or sequence interruption	
Understands the succession of command in the event of any emergency occurring.	
Has an appreciation for the necessity and use of line features when opposing manoeuvres are performed. The applicant should have a full understanding of the concept of one aircraft flying the "line" and the other the "miss".	
Fully understands the method with which radio failure procedures will be dealt with	
Has an appreciation for the effects of slipstream and wake turbulence that is associated with formation flying, particularly in the take-off and approach for landing phases.	
Is able to adequately conduct a full formation briefing for the sortie that is planned.	
Understands the method in which a formation will "break" in the event that a leader has to call this, should a mid-air collision be imminent.	
Has an appreciation as to how the position of the sun can restrict the ability of wingmen that are flying in a formation to adequately keep the leader in sight.	
Has an appreciation for the position of the other aircraft in the formation after the execution of "breakout" manoeuvres and the protocols involved in rejoining the formation. The applicant should be fully aware of the following additional factors regarding "breakout" manoeuvres:	
The mechanics of the particular break. The time taken and distance flown to achieve the "set-up" for the break.	
Whether prior spacing is required to achieve a safe break or not.	
Whether or not there is the potential for a mid-air collision during the break.	
The relative positions of the other aircraft after the break.	
Orientation with respect to the display line after the break has occurred.	
Is aware of the dangers of utilizing substitute pilots.	

<b>13.2.4 Ground Evaluation - Formation Aerobatics</b>	
<b>Item</b>	<b>Pass/Fail</b>
Has complied with all of the requirements associated with a Formation Flying Authorization	
Has an appreciation for the advantages of flying in certain formation stations or the inherent dangers thereof:	
Biplane interference	
Blind spots	
Stepped up formations	
Stepped down formations	
Formation stations that offer poor references for accurate station keeping	
Awareness of slipstream and vortex effects	
Dangers of formations where aircraft are "boxed in".	
Deficiencies that manifest when flying manoeuvres in line-astern formation	

Looser formations versus tighter formations	
Has a full appreciation and understanding of the aerodynamic and kinetic factors associated with flying barrel rolls and looping manoeuvres including:	
The effect of radius inside or outside the plane of the leader's flight path.	
The pitfalls and consequences of flying "egg-shaped" loops.	
The effect of offset tailfins and slipstream effect with changes in airspeed and power when flying propeller driven aircraft.	
Has an appreciation for the levels of kinetic and potential energy that are required to perform manoeuvres that are within the particular team's repertoire.	
Has an appreciation for the position of the other aircraft in the formation after the execution of "breakout" manoeuvres and the protocols involved in rejoining the formation. The applicant should be fully aware of the following additional factors regarding "breakout" manoeuvres: The mechanics of the particular break The time and distance flown to achieve the "set-up" for the break Whether prior spacing is required to achieve a safe break or not. Whether or not there is the potential for a mid-air collision during the break The relative positions of the other aircraft after the break Orientation with respect to the crowd line after the break has occurred	
Has been suitably and adequately counselled by an appropriate person on the subject of sequence development as it pertains to a formation aerobatic team expanding its range of manoeuvres. In this regard the formation members should have a knowledge of:	
The importance of achieving required energy states at "gate" positions.	
Energy conservation.	
The effects of on-crowd winds, off-crowd winds and strong winds.	
The effects of wind-shear and turbulence.	
Performing manoeuvres into or out of wind.	
The effects of density altitude on performance.	
Attainment of required speeds versus height lost.	
Modular sequences versus continuously flowing sequences.	
Lateral displacements that occur with snap and barrel rolls.	
Has sufficient experience and insight into both formation and aerobatic flying to expand the repertoire of specialist manoeuvres in a safe and responsible manner:	
The formation stall-turn.	
Mirror formations with particular emphasis on the entry and exit thereof	
Formation snap rolls.	
"Roll-over" and "roll-around" manoeuvres.	
Inverted formation flying.	
Appreciates the difficulties of performing at venues where there are either very short display lines, no display line at all, intersecting runways, crowd enclosures that are offset from the centre of the display line or a display line that is not aligned with the crowd line.	
The applicant should be well aware as to how this impacts on the execution of synchronized and opposing manoeuvres	
Is aware of the need to conduct an aerial reconnaissance of the display area prior to the commencement of a display flight if the take-off occurred from a remote airfield.	

<b>13.2.5 Ground Evaluation – Airliners</b>	
<b>Item</b>	<b>Pass/Fail</b>
Has previous display experience in either the General Aviation, Sport Aerobatic or ex-Military categories.	
Has developed a display sequence that is within the capability of the aircraft and where a bank angle of more than forty five degrees, or a rate of descent of more than fifteen hundred feet per minute, will not be exceeded.	

Has practiced the display sequence in the type of aircraft to be displayed at either the air show venue or a remote location, or has practiced the display sequence in a SACAA approved simulator of the same type of aircraft that will be displayed.	
Has a full appreciation for and in-depth knowledge of the control rules that apply to the operation of “Fly by Wire” aircraft when flown in an air show display scenario.	
Has a full appreciation for the momentum and inertia levels of airliner type aircraft and also the manoeuvring space required when flown in an air show display scenario.	
Is aware of the hazards of both wing-tip vortex generation and thrust blast to spectators and property on the ground when developing the display sequence.	
Is able to provide illustrated profiles for the sequence that will be flown.	
Has developed checklists for the immobilization and subsequent restoration of certain of the aircraft’s systems, where applicable such as: Ground proximity warning Undercarriage/flap warning Auto-throttle Flight Director	

<b>13.2.6 Ground Evaluation - Specialty Acts</b>	
<b>Item</b>	<b>Pass/Fail</b>
<b>CRAZY FLYING</b>	
Involvement of ground vehicles (Fire engines, police, ambulances)	
Communication with ATC	
Interaction with PA announcer	
Blown manoeuvres or séquence interruption	
Expertise of supporting cast or characters	
Low altitude control	
Ground effect and energy	
Special effects: Planning ahead for safety	
<b>WING-WALKING</b>	
Walking or riding at take-off	
Aborted take-offs	
Safety restraints	
Temperature, wind and rain	
Aircraft C of G changes	
Drag effects and their impact on performance	
<b>INVERTED RIBBON CUT</b>	
Three way communication: Aircraft, ground crew and ATC	
Low altitude control	
Uphill sloping, downhill sloping and undulating terrain	
Blind spots when flying a bi-plane	
Briefing of pole-holders	
Weather considerations	
Spacing of poles	
Materials used for poles and ribbon	
<b>JET POWERED CARS</b>	
Three way communication: Car, Recovery/support team and ATC	
Distance of flame emission from crowd	
Adequacy of the runway: (Length, width and smoothness)	
Time requirements	
Qualifications and experience of the driver	
Emergency procedures	
<b>INVERTED PARACHUTE DROP</b>	
Communication with the parachutist	

Harness restraint for the parachutist on take-off	
Flight without a canopy in certain aircraft – Effect of drag	
Prevention of interference with the controls by the parachutist	
Qualifications and experience of the parachutist	
Recognition of aerobatic manoeuvres by the parachutist	
Point of egress of the parachutist - communication	
Emergency procedures	
<b>TRUCK- TOP LANDING</b>	
Three way communication: Aircraft, truck and ATC	
Measurement of airspeed in the truck	
Turbulence caused by the truck's platform	
Effect of density altitude on TAS for aircraft and road speed for truck	
Effect of headwind or no wind on distance required	
Aborted landing.	
Take-off considerations	
<b>CAR VERSUS AIRCRAFT RACES</b>	
Three way communication: Aircraft, Car and ATC	
Low altitude control	
Turning areas for the car in relation to crowd enclosure	
Ability to keep the car in sight	
Qualifications and experience of the driver	

<b>13.2.7 Ground Evaluation - Helicopters</b>	
<b>Item</b>	<b>Pass/Fail</b>
Aerodynamics as they relate to the applicant's sequence:	
Dynamic roll over	
Vortex ring state / settling with power	
Retreating blade stall flap back	
Low "g" and 0 "g" manoeuvres in helicopters with teetering rotor systems	
Mast bounce	
Operating speeds with specific reference to the height / velocity diagram	
Review of the applicant's specific sequence	
Logic of sequence	
Low speed operations including hovering manoeuvres	
Operations with external loads	
Speed restrictions when operating with doors open / closed or on / off	
Emergencies:	
Engine failure	
Tail rotor failure / control failure	
Hydraulic failure	
Emergencies relating to the carriage of external loads	

<b>13.2.8 Ground Evaluation - Towed Gliders</b>	
<b>Item</b>	<b>Pass/Fail</b>
Communication Failure	
Tow-plane engine failure	

<b>13.2.9 Ground Evaluation - Radio Controlled Aircraft</b>	
Limitations of pilot's aircraft and radio equipment	
Backup Radio	
Prevention of Radio Interference	
Distance from the crowd line	

<b>13.2.10 Ground Evaluation - Parachuting</b>	
Emergencies	
Engine Failure of Jump Aircraft	

### 13.3 FLIGHT EVALUATIONS

<b>13.3.1 Flight Evaluation – Aviation Related Categories and Disciplines</b>	
<b>Item</b>	<b>Pass/Fail</b>
Fly the routine as documented and briefed	
Maintenance of energy throughout the display	
No infringement of crowd line	
Abide by the minimum height agreed	
Positioning of the display	
Adjustment for wind	
General competence exhibited	

<b>13.3.2 Flight Evaluation – Formation Flight</b>	
<b>Item</b>	<b>Pass/Fail</b>
Operation on the inside and outside of turns	
Blown manoeuvres or séquence interruption	
Maintaining station in all four basic formation positions namely “Vic”, line abreast, line astern and echelon.	
Maintaining station in turns that are banked at up to thirty degrees, both to the left and to the right, in all of the above-mentioned basic formation positions.	
Flying in any of five basic positions, namely: leader, left of leader, right of leader, line astern and echelon left and right	
Changing station within the formation and a fully understanding of the safety and airmanship aspects in doing so.	
Assuming leadership of a formation when given it.	
Relinquishing the leadership of a formation or to a wingman, if so desired.	
Understanding the method in which a formation will “break” in the event that a leader has to call this, should a mid-air collision be imminent.	
Joining up procedure with specific focus on technique and closure rates.	

<b>13.3.3 Flight Evaluation - Formation Aerobatics</b>	
<b>Item</b>	<b>Pass/Fail</b>
Position keeping in a Loop	
Position keeping in a Barrel Roll	
Position keeping in a Wingover	
Inverted flight position keeping	
Mirror Loop	
Formation Half Cuban	
Formation leading	

<b>13.3.4 Flight Evaluation – Airliners</b>	
<b>Item</b>	<b>Pass/Fail</b>
Avoidance of “low thrust/high sink rate” situations	
Avoidance of excessive bank angles	
Flap/speed limits	
Disablement of warning systems (GPWS, Gear warning)	
“g” Limits	
Maximum operating speeds	
Disablement of aircraft systems (Auto-thrust, Flight Directors)	
Operation of “Fly by Wire” aircraft in the air show environment	
Airspace constraints	
Air Traffic Control Clearances	



Multi Crew Duties outside of the Standard Operating Procedures	
<b>13.3.5 Flight Evaluation – For Performers in Sport, Vintage and ex-Military Aerobatic Aircraft</b>	
<b>Item</b>	<b>Pass/Fail</b>
Axial roll	
Multiple axial rolls (Depending on aircraft capability)	
Barrel roll	
Inside loop	
Half Cuban 8	
Reverse Cuban 8	
Stall turn	
Half roll to inverted light – Half roll to erect flight (Depending on aircraft capability)	
Snap roll (Depending on aircraft limitations)	
Half or full vertical roll down and/or up (Depending on aircraft capability)	
Full aerobatic sequence as briefed, but excluding manoeuvres listed in Section 7, Paragraph 7.10	

<b>13.3.6 Flight Evaluation – For holders of valid Advanced Class and Unlimited Aerobatic Ratings</b>	
<b>Item</b>	<b>Pass/Fail</b>
Three turn upright spin	
Inverted spin (Minimum of one turn)	
Snap roll	
Inverted flight – Two consecutive 180 degree inverted turns	
Three consecutive axial rolls	
4 Point hesitation roll	
Vertical rolls up and down	
Inside snap rolls on descending line	
Torque roll	
Gyroscopic manoeuvres	
Full aerobatic sequence as briefed	

<b>13.3.7 Flight Evaluation – Ex-Military Jets</b>	
<b>All Height Limitations</b>	
<b>Item</b>	<b>Pass/Fail</b>
High G turns	
Barrel rolls	
Straight rolls, hesitation rolls and Derry turns	
Inside Loop, Cuban 8 and reverse Cuban 8	
Inverted flight	
Wingover	
Full aerobatic sequence as briefed	
Steep climbing roll	
Tail slide	

**13.3.8 Flight Evaluation – Special Cases**

All Height Limitations, the DAE, in consultation with his peers, will determine the evaluation that is applicable to the special case being considered.

Item	Pass/Fail

### 13.4 EVALUATION RESULTS

13.4.1 Ground Evaluation	Passed	Failed
Comments		

13.4.2 Flight Evaluation	Passed	Failed
Comments		

13.4.3 Display Authorization	Approved	Declined
Comments		

**Record Sheet 3**

**13.4.4 Display Limitation**

Specify the specific limitations that are applicable to each of the categories and disciplines for a Display Authorization that has been approved. For example 1D (Solo Aerobatics) – No Gyroscopic Manoeuvres approved; 3A (Formation Aerobatics in ex-military jets) – as wingman only.

Category and Discipline	Limitations		
DAE Signature		Applicant's Signature	
Date		Date	
Place		Place	

