SOUTH AFRICAN POWER FLYING ASSOCIATION

Sportsman Navigation Rally

Rules and Regulations

THE AERO CLUB
OF SOUTH AFRICA

Edition 2019

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AIMS OF SPORTSMAN NAVIGATION RALLY FLYING

The sport of Navigation Rally Flying is aimed to improve fundamental flying skills to enable a team (Sportsman Crew) to navigate and handle their aircraft under Visual Meteorological Conditions (VMC) and as independent of technical subsystems as possible. Thus, Navigation Rally Flying enhances flying safety. This competition is designed as an introduction to Rally and Precision competitions and does not replace these as either National or International events.

This overall aim for Fun Flying is achieved by:

- emphasizing the ability to navigate a given route using basic equipment
- emphasizing the ability to follow a precise track while adhering closely to a timing test (punctuality test)
- emphasizing the ability to perform realistic observation tasks while navigating the aircraft on a timing test (observation test)
- emphasizing the ability to handle the aircraft on short and narrow landing strips (landing test)
- thereby demonstrating the team's ability to perform accurately and safely.

A 1. INTRODUCTION

SAPFA has designed a flying competition to introduce pilots and navigators to the exciting world of competition flying and thereby improve their general flying skills.

The competition is loosely based on the FAI Rally and Precision competitions but with many of the complications removed.

A safety briefing will be given at the start of the competition. Following this a full briefing will be given on “How to Fly the Competition” by a member of the National Team.

At the allotted time the crews will receive an envelope containing a map and photo sheets. A time sheet will also be given which will give them the time they are required to be at each turn point. The map will have the route and turn points printed on it. The crew will be required to measure the heading for each leg and also insert the timing for each leg onto the map. They will be assisted in the Preparation of Your Map and only fly once this is correctly prepared.

Once this is completed, they will fly the route, attempting Accurate Navigation and according to the Time Schedule. A photo will be given of each turn point which needs to be identified (Yes / No) and a photo of a feature on each leg will also need to be found and marked on the map (Observation).

A Spot Landing could be included along the route or at the home field.

Scoring is all “negative marking” and the team who gets the lowest score will be declared the winner.

Since this competition is designed for the newcomer, those pilots who have already obtained Provincial or National Colours are encouraged to assist the newcomers with their preparation or to compete as Navigators. Should a Pilot or Navigator with Provincial or National Colours wish to compete, he will compete in a separate class.

- Sportsman - class 3 (2 Sportsman participants, limited to a maximum of 5 sportsman entries within a 2-year cycle) – Penalties as per class 3.

- Intermediate N - class 2N (Sportsman pilot + Protea navigator), – Penalties as per class 3, Flight planning as per GAC Rules if available.

- Intermediate P - class 2P (Protea Pilot + Sportsman Navigator), and (Sportsman who have exceeded their 5 sportsman entries) – Penalties as per class 2P.

- Advanced class 1 (2 Protea entry participants) - in accordance with GAC Rules.

A 2. GENERAL RULES

A 2.1 The competition language will be English.

A 2.2 Smoking is prohibited during briefings and debriefings.

A 2.3 Official competition time will be local time. A master clock, showing GPS time, will be available for competitors to set their clocks.

A 2.4 Each crew will fly the same aircraft throughout the competition. In case of a technical malfunction, the Competition Director may authorize a change to another aircraft.

A.2.5 Each crew will be provided with charts, not necessarily aeronautical, with a scale of 1: 200 000 or 1:250 000.

A 2.6 Before each stage, a list of starting sequence and times will be published. A minimum time of two minutes between take offs will be used.

A 2.7 The use of electronic aids and/or autopilot is not allowed. All unauthorized devices will be sealed or taken into custody during the flight by the organizer.

A 2.8 Between a 60 minutes and 90 minutes before take-off a competition envelope, containing all information and instructions for the execution of the flight, will be handed over to the crew.

A 2.9 The competition flight is to be conducted according to these rules and the flight instructions.

A 2.10 The competition director will use GNSS-FR data to check if the crew has executed their flight in accordance with the flight instructions; deviations will incur penalties in accordance with A 4.5 (each time).

A 2.11 Until debriefing the crew must not communicate with anybody, except officials.

A 2.12 Crews finishing a stage before the last take off of the same stage will be isolated.

A 3. COMPETITION DETAILS

A 3.1 Navigation Test

A 3.1.1 Each flight must have a length between 80 NM and 120 NM, measured from take-off to landing, with a minimum of 10 legs and a maximum of 16 legs. Each leg must be between 5 NM and 15 NM.

A 3.1.2 Each competition flight will consist of:
- flight preparation,
- time checks,
- observation test
- landing test (minimum 0, maximum 2)

A 3.1.3 After take-off the pilot must follow the prescribed departure instructions.
The Start Point (SP) shall be over flown in the direction of the outbound track. Turn Points (TP's) and Finish Point (FP) shall be over flown in the direction of the inbound track.

A 3.1.4 After passing the FP aircraft must follow the prescribed arrival instructions.

A 3.1.5 Prescribed departure and arrival tracks will be checked using GNSS-FR data. Not following the instructions will result in penalties according to A 4.5.

A 3.1.6 A turn of more than 90° from the track between SP and FP will incur penalties each time when the FR shows this deviation for more than 5 seconds in sequence.

A 3.1.7 Turns after passing the time gate must be executed into the shortest direction from inbound to outbound course. These turns don't fall under the "more than 90° rule" if the turn is completed in 45 seconds after gate passage.

A 3.1.8 At SP the gate has a “gate line”, being a distance of 1,0 NM right and left of SP (2 NM long in total). Crossing in opposite direction to the line of flight of this “extended SP gate line” any time, gives penalties for circling.

A 3.2 Plotting the Navigation Test

A 3.2.1 For this level of competition a map will be given to each crew with the Start Point, Turn Points, Finish Point and Route printed on the map. The Competition airfield will also be clearly marked.

A 3.2.2 All TP´s must be exact points on the ground and on the map. TP’s must be visible from at least 1.5 NM on inbound track.

A 3.3 Timing Test

A 3.3.1 GPS time will be used during the competition. Times (hh:mm:ss), may be given in local time, and will be included in the flight instructions for take-off, SP, each CP, FP, for the latest landing time and the time to hand over the competition sheet. The take-off time will be taken at a clearly announced T/O time gate.

A 3.3.2 Timing will be checked during take-off, on a minimum of 50% of the CP’s, on FP, and when handing over the competition answer sheet.

A 3.3.3 Time will be checked when the aircraft crosses a gate perpendicular to the inbound track, (SP to the outbound track) running through the CP and extending **1.0** nm either side of the track.

A 3.4 Observation Test

A 3.4.1 The observation test begins at the start point (SP), and ends at the finish point (FP).

A 3.4.2 Crews will be provided with sheets of photographs.
a) On the left will be a turn point photograph,
b) On the right will be an enroute photographs, taken of a feature on the following leg.

A 3.4.3 Turn point photographs may be taken from any direction. They may be correct or incorrect. If correct, the feature on the photo must be the TP. If the turn point photograph is incorrect, the feature shown on that photograph must not be within 1,0 NM of the turn point. The crew will decide and mark their competition map with their answer (Yes/No). The photographs will be marked with the turn point number and will be in correct sequence.

A 3.4.4 Enroute photographs will be marked with the leg number and presented in sequence on the right after the previous turn point photograph. The object to be identified will be ringed on the photograph and must be within 300m of track. If observed, the position of the ringed object must be clearly marked on the competition map.

A 3.5 Landing Test

A 3.5.1 The landing test will be done as a full stop landing at the end of the navigation flight. Should an intermediate landing be planned, this will be a touch and go.

A 3.5.2 Each landing will be made out of a normal approach where the use of power, flaps, spoilers and sideslip is at the discretion of the pilot.

A 3.5.3 Touch down must be on both main wheels except when the Chief Landing Judge has declared "crosswind conditions". In this case the aircraft may touch down on the windward main wheel.

A 3.5.4 The nose wheel must be off the ground until both main wheels have touched down. Tail wheel aircraft must be landed with the tail below the horizontal.

A 3.5.5 If the main wheels touch in different boxes of the landing field, the box with the highest penalties will be taken for scoring.

A 3.5.6 An aircraft is considered bouncing, when after any touchdown the aircraft jumps (all wheels in the air) over one or more landing field boxes.

A 3.5.7 In case of a three-point landing with a tail wheel aircraft, the touchdown of the main wheels will be measured. If the distance between touchdown of the tailwheel and mainwheel(s) is less than the distance of main and tailwheel plus 5 meters, the touchdown of mainwheels will be used for scoring, otherwise the tailwheel touchdown will be used.

A 3.5.8 If not all wheels are on the ground within the landing box the landing will be judged "Landing out of landing box".

A 3.5.9 Crosswind condition must be declared, when the crosswind component is 8 knots or more. Wind direction and speed shall be measured close to the zero line by suitable equipment. The Chief Landing Judge will decide when crosswind condition exist. Crews will be advised by radio. If the crosswind component exceeds 15 knots, the landing test of that stage will be cancelled.

A 3.5.10 The maximum tailwind component for scored landings is 5 knots. If the tailwind component exceeds 5 knots landing direction should be changed or the landing test of that stage will be cancelled.

A 3.5. 11 Abnormal landings are defined as follows:

a) Landing not in accordance with A 3.5.4.

b) One main wheel off the ground to a height of more than one diameter of the main wheel at the initial touch down without authorized crosswind conditions.

c) In authorized crosswind conditions, touchdown on the leeward main wheel with the windward main wheel off the ground to a height of more than one diameter of the main wheel.

d) Any part of the aircraft other than the wheels touching the ground.

e) Retraction of flaps and/or change of spoiler setting overhead the marked landing strip before touchdown.

f) Touchdown with blocked wheels.

Penalties for abnormal landings will be given in addition to the other landing penalties.

A 3.6 Flight Data Recording Equipment

A 3.6.1 Organizers should use FAI approved flight data recording equipment.

A 3.6.3 Responsibility for the operation of the flight data recording system in the aircraft rests with the competitor.

A 3.6.4 No competitor is allowed to manipulate the flight data recording system in any way, otherwise he may be disqualified. Specific issues concerning the use of a flight data recording system have to be covered during the Opening Briefing.

A 4. PENALTIES

		Limit	Sportsman Penalties Class 3	Intermediate Penalties Class 2 N	Advanced Penalties
A 4.1	Passing take off time gate:				
	Take-off time 0 to + 60 seconds	60	0	0	0
	Per seconds advance/delay		1	3	3
			max. 60	max. 100	max. 100
A 4.2	Time test:				
	Overhead at given time +/- sec		15	5	2
	More than +/- sec advance/delay per second		1	3	3
	Passing a timed TP outside time gate		60	100	100
			max. 60	max. 100	max. 100
A 4.3	Observation test:				
	Enroute photos between turn points, each				
	Correct identification within 0,5 NM of actual position	0.5	0	0	0
	> 0,5 NM to 1,0 NM	0.5 to 1.0	15	15	15
	Not observed		30	30	30
	Incorrect or outside limit	>1.0	50	50	50
	Enroute canvas targets on ground, each				
	Correct identification within 0,5 NM of actual position	0.5	0	0	0
	> 0,5 NM to 1,0 NM	0.5 to 1.0	15	15	15
	Not observed		30	30	30
	Incorrect or outside limit	>1.0	50	50	50
	Photos at Turn Points, each				
	Correct identification		0	0	0
	Not observed		50	50	50
	Incorrect identification		100	100	100
A 4.4	Passing outside a gate, not timed		100	100	100
	Infringement of safety and flight rules		600	600	600
	Flying below the minimum prescribed altitude		200	200	200
	Failing to follow the prescribed departure and arrival instructions		200	200	200
	Opening Safety Envelope with backup map		400	400	400
	Carrying of unauthorized electronic equipment		Disqualification	Disqualification	Disqualification
A 4.5	Manoeuvres of more than 90° from track for more than 5 seconds between SP and FP, each time.	5	100	100	100
	Maximum per flight		1000	1000	1000
A 4.6	Landing test (see APPENDIX AI):				
	White line		0	0	0
	Area "A"		10	10	10
	Area "B"		20	20	20
	Area "C"		30	30	30
	Area "D"		40	40	40
	Area "E"		60	60	60
	Area "F"		80	80	80
	Area "G"		100	100	100
	Area "H"		120	120	120
	Area “X”		60	60	60
	Area “Y”		120	120	120
	Landing out of the landing box or rolling out		200	200	200

	of the box to the left or right				
	Applying power after touchdown, within the landing box,		50	50	50
	Go around without touching ground, (without being forced)		200	200	200
	Go around instead of full stop		200	200	200
	No attempt to land at designated landing field		300	300	300
	Abnormal landing		150	150	150
	Penalties for abnormal landings will be given in addition to other landing; however, the maximum per landing will be		300	300	300
	Late submission of competition answer sheet or infringement of A 2.1.13		300	300	300
A 4.7	Not monitoring a prescribed frequency		200	200	200
A 4.8	If a crew lands at an airfield different from the official routing and continues the flight, no time allowance will be made.				
A 4.9					

A 5 DISQUALIFICATION

A 5 Disqualification of a crew may result from:

a) any misconduct or bad behaviour on the ground or in the air,
b) dangerous flying, endangering people, aircraft or structures,
c) general protests against other competitors,
d) failure to comply with the relevant rules and regulations,
e) violating FAI anti-doping rules,
f) manipulation of the flight recording system.
g) any kind of cheating.

A 6. AIRCRAFT

A 6.1 Aircraft eligible for the competition are piston engine aircraft and propeller turbine engine aircraft at the discretion of the organiser.

A 6.2 The minimum allowable declared competition airspeed is 60 kts. Declared competition airspeeds should be in multiple of 5 kts only.

A 6.3 Aircraft must have an endurance equal to maximum stage length at competition speed, plus 10 % and additionally a VFR fuel reserve to meet the legal requirements.

A 6.4 All aircraft must be fitted with a serviceable communication radio.

A 6.5 Each aircraft involved in the competition (competition aircraft and support aircraft) must be insured against 3rd party liability claims. A certificate of insurance in English shall be delivered to the Organizer.

A 6.6 Aircraft will be parked in the open. Each crew must provide their aircraft with its own tie down material.

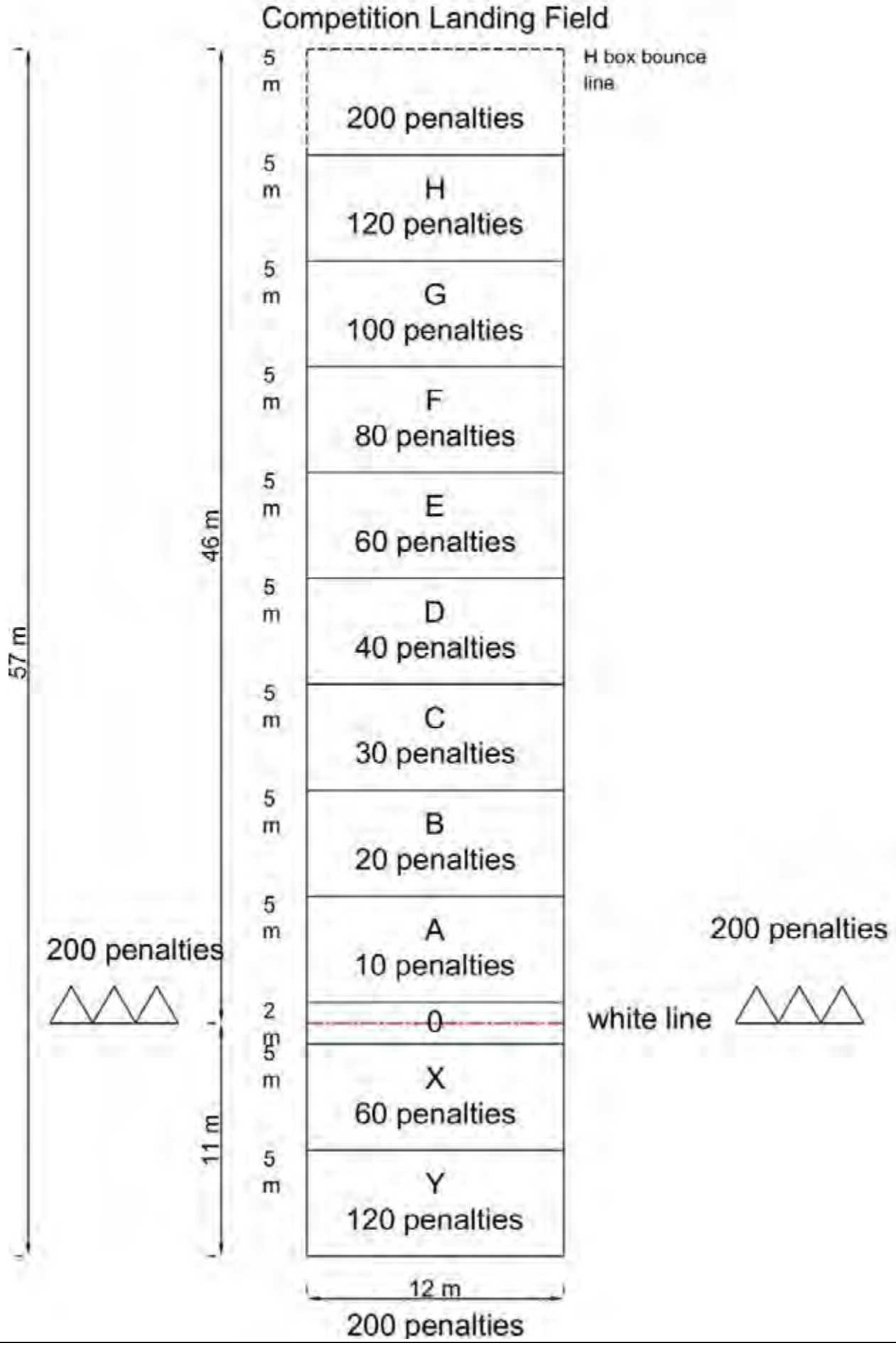
A 7. PROTESTS

Protests will be heard at the discretion of the organiser.

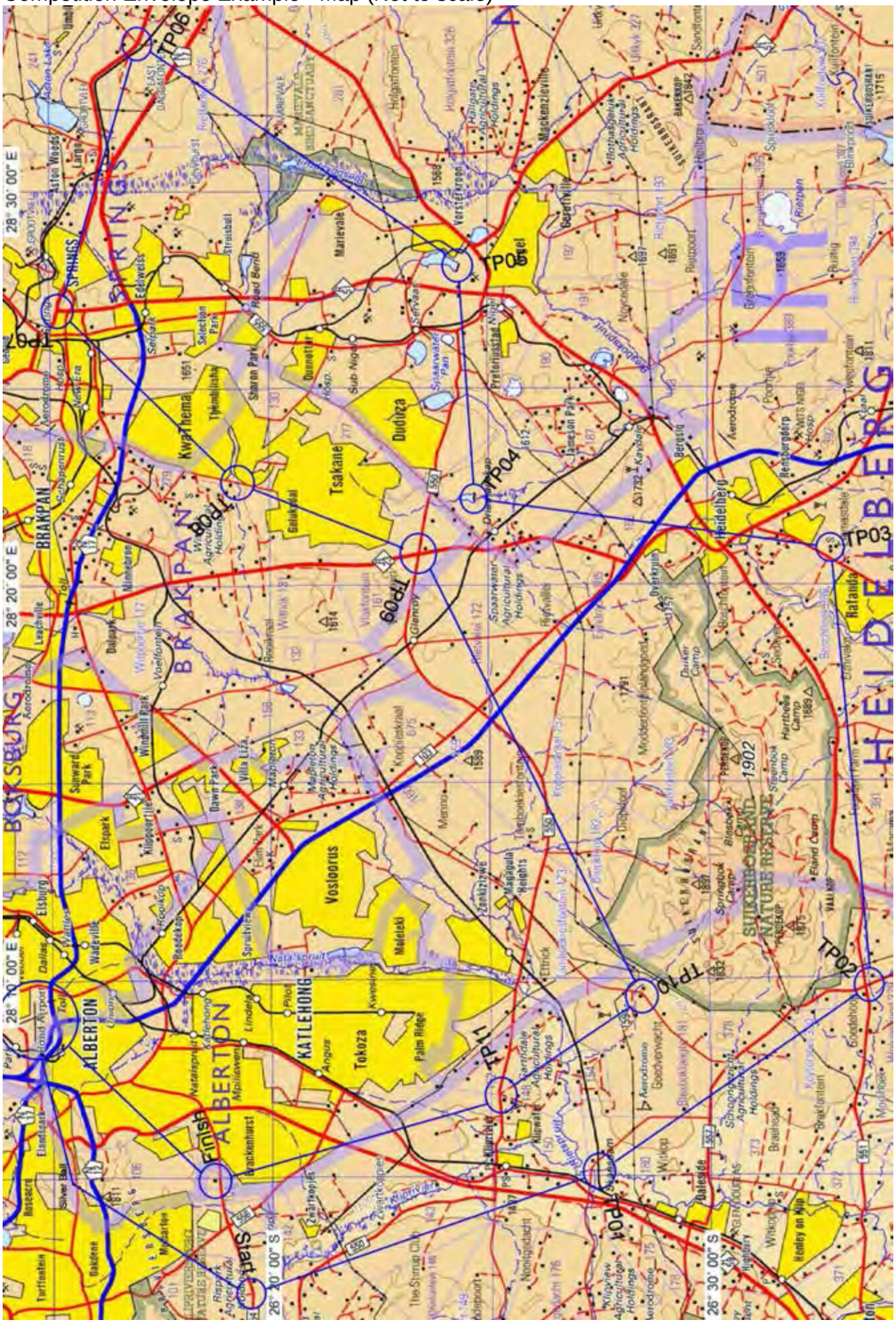
A 8. FAI RULES

The FAI Air Rally Championships Rules and Regulations, latest edition shall be used for any further interpretation of these rules.

APPENDIX AI Competition Landing Field

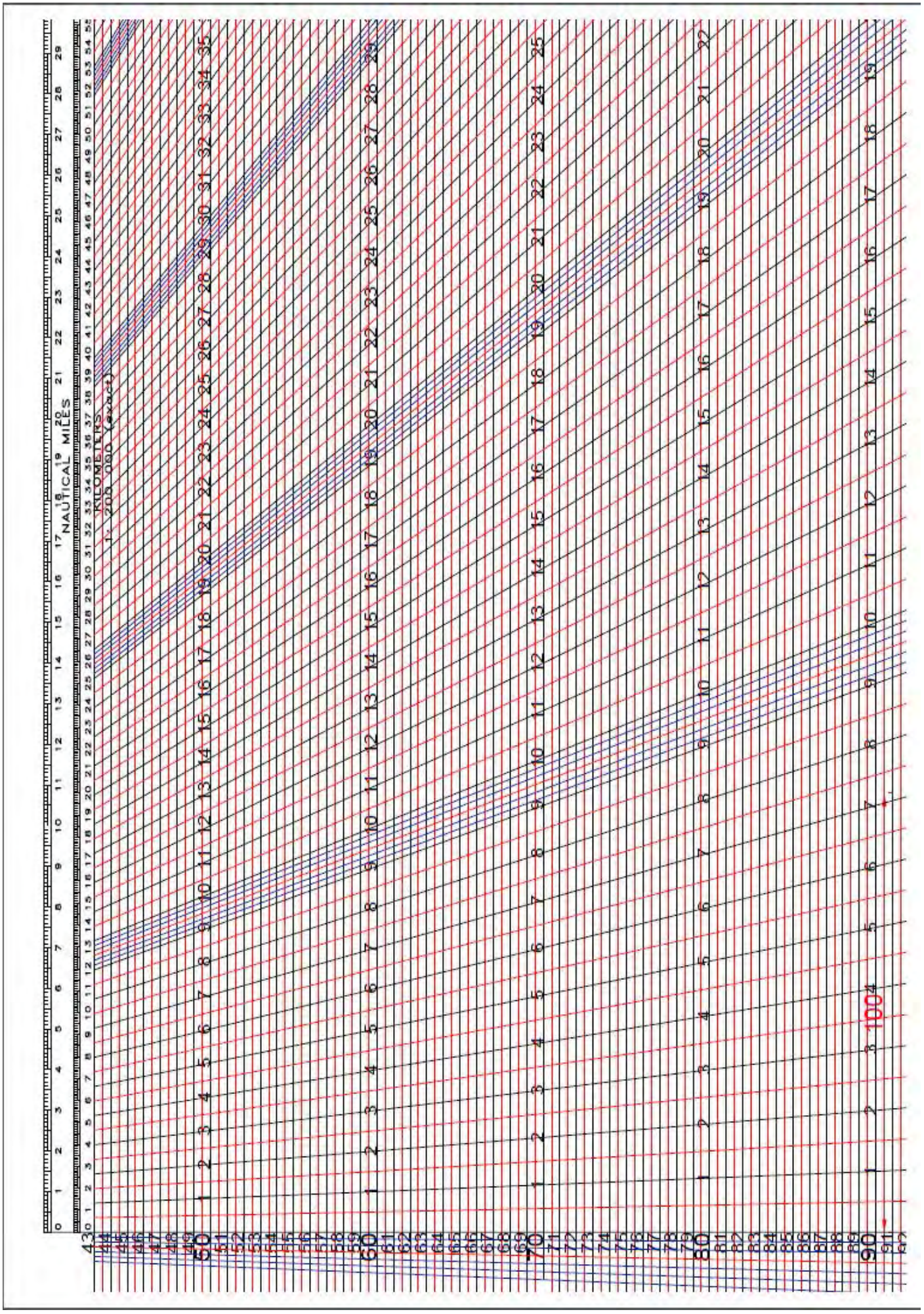


Competition Envelope Example - Map (Not to scale)



RAND AIRPORT CHALLENGE 2016 - Fun p1

Rand Airport Challenge						
30 January 2016						
Rand Airport						
Blue						
Number	**1**	**Rules**	**Class 3**		**Papers**	**10:30:00**
Pilot	**Leon Bouttell**				**Take Off**	**11:00:00**
Navigator	**Karyn Purchase**				**To Start**	**00:05:00**
Callsign	**ZU-FBJ**	**Type**	**Sportstar Plus**			
Speed	**75**			Ground Speed Kts	Elapsed Time	MIN ALTITUDE
Wind Dir	**0**	**Wind Vel**	**0**			
Take Off					**00:00:00**	
STRT				75.0	00:05:00	
TP01				75.0	00:09:17	
TP02				75.0	00:19:03	
TP03				75.0	00:24:04	
TP04				75.0	00:31:04	
TP05				75.0	00:38:55	
TP06				75.0	00:45:08	
TP07				75.0	00:51:42	
TP08				75.0	01:00:20	
TP09				75.0	01:04:52	
TP10				75.0	01:09:25	
TP11				75.0	01:15:10	
TP12				75.0	01:19:43	
FIN				75.0	01:24:00	
						Allowance
Last Landing Time					01:31:00	00:21:35
Answer Sheet Hand Over Time					01:36:00	00:26:35


NAUTICAL MILES
KILOMETERS
1: 200 000 (exact)