FAI Sporting Code

Rules and Regulations
Precision Flying

DRAFT - 2009 Edition

Approved by the FAI General Aviation Commission (GAC)

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Fédération Aéronautique Internationale

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A. COMPETITION RULES

A.0 INTRODUCTION

A.0.1 The competition is for solo pilots in single piston-engine class C aero planes, with a minimum 3 hours endurance and with a minimum empty (dry) weight of 175 kgs. Each competing pilot should have a valid private pilot license or that of a higher grade and a valid FAI Sporting License. Each competing aircraft must possess a Certificate of Airworthiness. Each aircraft must be operated according to its Airworthiness Certificate.

A.0.2 Each participating country is allowed to send a maximum of four (4) competitors and in addition a team manager, engineers and observers. Each participating country is invited to send current qualified international judges. The competition director may increase the total number of competitors to five ~~5~~ (or more according local rules) from each country in the initial invitation with the recommendation that the number of competitors do not exceed eighty (80).

A.0.3 The competition will consist of the following three groups of tests:

1. FLIGHT PLANNING AND NAVIGATION TESTS
2. SPECIAL OBSERVATION TESTS
3. LANDING TEST

A.0.4 Competition will consist of one Official Practice Navigation Test, one Landing Test and two Navigation Tests.

A.0.5 Each competitor will fly the same aero plane throughout the competition, except that, at the discretion of the competition director, he may change to another aero plane of the same type if a technical malfunction occurs.

A.00 USE OF GPS-LOGGERS

A.00.1 The use of Flight Data Recording Equipment is mandatory for World and Continental Championships.

A.00.2 Only Equipment approved by GAC may be used.

A.00.3 Requirements for Flight Data Recording Equipment are documented in the Sporting Code, Section 2, Annex 4

A.00.4 When Flight Data Recording Equipment is used no Judges or other Officials are required at Checkpoints.

A.00.5 For Continental and World Championships pilots may share Flight Data Recording Equipment only at the discretion of International Chief Judge.

A.00.6 Responsibility for the operation of the Flight Data Recording Equipment rests with the Competitor.

A.00.7 Before each flight the pilot must make sure that his Flight Data Recording Equipment is cleared of all previously registered data.

A.00.8 The International Chief Judge – or a Judge appointed by him – will use the registered flight track of each Competitor, as depicted on paper-printout or screen-display, to make judgments on passing times and possible violations of the flight rules or given flight instructions.

A.00.9 The Master-Clock has to be synchronized with GPS-Time taken from a GPS-unit.

A.1 FLIGHT PLANNING AND NAVIGATION TESTS

A.1.1 FLIGHT PLANNING TESTS

A.1.1.1 The competitor must report at the entrance to the flight planning room five (5) minutes before the assigned time to be checked for non permitted equipment (see A.1.1.8)

A.1.1.2 The competitor may enter the flight planning room, three (3) minutes before the assigned time to arrange the table to be ready in time to receive (1) an envelope, (2) the competition map, (3) a set of instructions, (4) a set of photos, (5) a flight planning form, (6) departure and arrival charts.

A.1.1.3 The competitor is required to calculate his flight plan for the route of the navigation test, which he must submit to the competition management within thirty (30) minutes after receiving his flight instructions. Following the submission of the flight plan, but not less than twenty (20) minutes after receiving flight instructions, the pilot will receive a computerized flight plan.

A.1.1.4 The instructions will define all necessary flight procedures and identify the turning points. Turning points, together with start and finishing points ~~will be marked with a pinprick and circled.Turning points will be numbered~~ will be circled and numbered. Wind direction and speed between 5 and 30 knots will be given. The wind on the computer-calculated Flight plan may differ. All competitors work with the same wind at Flight planning. ~~A map with the navigation route clearly marked and the photographs must be displayed~~ A master map with the navigation route clearly marked (all turning points, together with start and finishing points will be marked with a pinprick) and the photographs must be displayed in the flight planning room.

A.1.1.5 The flight plan will require the competitor to calculate only the true heading in full degrees and the time on each leg in minutes and seconds. Leg distance to at least tenths of a nautical mile will be given. Time for procedure turns shall not be added by the competitor.

A.1.1.6 If actual wind conditions change during competition (more than 45° in direction or/and more than 10 kts in velocity) a new computer Flight plan has to be given out for the next group of competitors.

Computerized flight plans based on each individual competitor's official TAS, will be produced by the competition management and will be used by all competitors.

The computer flight plan shall specify:

- Local times for take off, start point, all turning points and finish points in hours, minutes, seconds
- True tracks and true headings in full degrees
- Groundspeeds in at least tenths of knots
- Distances to at least tenths of nautical miles
- Time on leg in minutes, seconds.

A.1.1.7 For map preparation, the competitor is allowed 30 minutes in addition to the 30 minutes allowed for flight planning. Consequently, a competitor who submits his flight plan after 20 minutes has a total of 40 minutes for map preparation. Map preparation will take place in the flight planning room. Leaving this room later than 60 minutes after receiving the flight instructions will incur penalties. From the time when the competitor is scheduled to leave the flight planning room, he shall be allowed 15 minutes to go to his aircraft, prepare it for flight and taxi to the take-off position.

A.1.1.8 Flight planning calculations shall be performed by manual aids. No electronic equipment, except clocks and no tables of calculations, prepared in advance, are allowed. No communication and no navigation device whatsoever is allowed, except for Flight Data Recording Equipment.

A.1.2 NAVIGATION TESTS

A.1.2.1 There will be two navigation tests. The object of each test is to assess the competitor's skill in precise navigation and timing. The test includes maintaining correct tracks, altitudes and ground speeds.

A.1.2.1.1 Times will be checked on take-off and on passing overhead start-and finish point, in addition to timing at turning points and other checkpoints. Latest arrival time for reaching downwind/holding pattern at competition airfield after passing the finish point can be given.

A.1.2.1.2 Turning points are not necessarily timed checkpoints. There shall be 12 to ~~16 timed~~ 25 timed checkpoints, including take off, start point and finish point. No navigation test will have more than 8 legs. All legs shall be straight. No secret Checkpoint will be placed in the first 0,5 Nm of any leg.

A.1.2.1.3 The aircraft must be established on the correct track of the first leg when crossing the start point. Circling after passing the start point is not allowed, except if prescribed for specific flight procedures.

A.1.2.1.4 The start, turning and finish points must be well-defined features, both on the map and on the ground.

A.1.2.1.5 During the navigation tests the recommended flying altitude is 1000 feet AGL. The organizer has the right to declare a different altitude for safety reasons. The minimum altitude to be flown is 500 feet AGL or the state limits, whichever is higher. If the state limit is higher than 500 feet AGL, it must be published in the local regulations.

A.1.2.2 The distance for each of two navigation tests will not be less than 70 Nm. and not more than 100 Nm. The total distance for both navigation tests will not exceed 180 Nm. Each navigation test will be accompanied by the relevant flight planning and special observation tests. The minimum allowable competition TAS is 60 kts. Declared speeds will be in multiples of 5 kts. only.

A.1.2.3 The departure and arrival charts will give the position of the start and finish points. The charts will be to an approximate scale of 1:50,000 and will be defined in the local regulations.

A.1.2.4 The Take-Off-Time will be measured at a gate situated perpendicular to the runway direction along of the length of the runway in use, and clearly marked.

A.1.2.5 All SCs, TPs, SP and FP must be passed by the Competitor inside a “gate”.

All gates extend 0,5 NM to the left and right of the relevant point.
- For SP perpendicular to the outbound track; for FP, TPs and SCs perpendicular to the inbound track.

Passing outside a gate gives penalties for “not observed”
- no penalties will be given for deviating from the track more than 0,5 NM if a gate is not established.

A.1.2.6 Penalties for a turn of more than 90° on the leg are only given, when the FR-recording shows this deviation for more than 5 seconds in sequence.
After passing the gate at a TP no penalties for circling will be given within a radius of 0,5 NM of the TP.

A.1.2.7 At SP the gate has an extended “gate line”, being a distance of 1,0 NM right and left of the SP.
- crossing opposite to the direction of flight this “extended SP-gate line” any time gives penalties for circling.
- Timing including “not observed” at the SP takes place when the aircraft is for the first time passing the 0,5 NM right or left gate of the SP in the direction of flight.

A.3.3 All landings are to be made as close as possible to the zero area, within a strip 12 meters wide and 72 meters long. See Appendix A2. The strip will be marked and aircraft must keep within the strip.

A.3.4 Touchdown must be on both main wheels with a maximum distance of five (5) meters between main wheel 1 and main wheel 2, except when the international chief judge has decided that a crosswind condition exists. If the touchdown is in or after the zero area and the distance between the touchdown of the main wheels is 5 meters or less, the touchdown point for measurement is the touchdown of the first main wheel.

If the distance is more than 5 meters, the touchdown point for measurement is the touchdown of the second main wheel.

Nose wheels must be off the ground. Tail wheel aero planes must be landed in a configuration where the tail is lower than the horizontal attitude.

A.3.5 Touchdown on or after the zero area is measured when the aircraft is rolling on the ground after all bounces. In case of bounces before or after the line, the touchdown counted is that one which gives the highest penalty.

A.3.6 An aircraft is considered bouncing when both main wheels (or a sole main wheel) leave the ground after any touchdown, to a height of more than the diameter of the main wheel, or for a distance more than 15 m. A jump into a 5 meter box must be calculated this way: Box meters minus 4 meters, minus the measured lift-off point before.

A.3.7 In the case of any part of the aircraft touching the ground before the zero area, the distance measured will be the distance from the touchdown point to the zero line. In the case of a tail wheel landing which is judged to be three-pointer landing (the tail wheel may roll on the ground for a maximum distance of five (5) meters before the main wheels), the touchdown point of the main wheels shall be measured.

A.3.8 A crosswind condition shall exist, when the crosswind component of the wind, that is the component at right angles to the runway in use, is 8 kts or more. Wind direction and speed shall be measured close to the zero-line by suitable anemometer and recorded for each landing. The maximum allowed tailwind component is 3 kts.

The international chief judge will decide when a crosswind situation exists, and shall direct that a conspicuous flag signal is placed 30 meters before the zero line to advise competitors.

Touchdown on the upwind main wheel only is allowed when a crosswind exists.

A.3.9 Power has to be completely retarded at touch down and only sufficient power is permitted after the aircraft has come to a complete stop, to continue the roll to the end of the landing strip. After leaving the landing strip, the runway shall be cleared.

A.3.10 Abnormal landings in all four types of landing are defined thus:

a) Nose wheel not off the ground,
b) A tail wheel aircraft not in a configuration with the tail below the horizontal,
c) One main wheel off the ground at the initial touchdown, without authorized crosswind conditions, to a height of more than the diameter of the main wheel,
d) Touchdown on downwind main wheel only and with upwind wheel off the ground in crosswind conditions, to a height of more than the diameter of the main wheel,
e) Any part of the aircraft other than the wheels touching the ground,
f) Retraction of flaps inside landing strip before touchdown,
g) Landing with locked wheels,
h) One or both main wheels leaves the ground, while nose wheel remains on it.

A.3.11 In the event of a competing aircraft not touching the ground in any of the landing tests or landing outside the strip, he will be penalized.

A.8.5 When the prescribed fee has been paid to the competition management and the protest filed in writing, the protest becomes official and is referred to the international jury for a decision. The team manager and competitor have the right to address the jury if desired.

A.8.6 If the correction of the International Chief Judge at Complaints or the ruling of the jury affects another or other competitors, the appropriate alterations will be made to the results.

A.8.7 Protests against other competitors are forbidden.

A.8.8 The jury must be available at all time during the championship to deal with protests.

A.8.9 The prescribed fee in connection with any protest submitted to the jury will be EURO 50.— and shall accompany the written protest. The fee will be returned in the case of a successful protest only.

A.9 TABLE OF PENALTIES

		Penalties	Maximum Penalties
A.9.1	**FLIGHT PLANNING AND NAVIGATION**		
A.9.1.1	Preparation of flight plan		
	- Limit + or - 2 degrees in heading	0	
	- Additional error per full degree	2	
	- Limit + or - 5 seconds in timing	0	
	- Additional error per full second	1	
	- Maximum total penalties for calculation		350
	- Late delivery of flight plan (> 30 minutes)	50	50
	- Failure to leave flight planning room after 60 minutes	100	100
A.9.1.2	Take-off time (aircraft passing starting gate)		
	- Limit + 60 seconds	0	
	- Take-off “gate” before or after time slot	200	200
A.9.1.3	Passing each timed point		
	- Limit + or - 2 seconds	0	
	- Additional error per full second	3	~~200~~ 100
	- “not observed“ (outside gate), each time	~~200~~ 100	
A.9.1.4	Procedure turn		
	- Failure to carry out prescribed procedure turn each time	200	200
A.9.1.5	Flying below the minimum altitude (each time)	500	500
A.9.1.6	Other deviations from track (each time)		
	- Circling or backtracking being a turn of more than 90 degrees either way (each time)	200	200
	- not following described arrival/departure routes and/or procedure.		200
	- Late arrival at downwind/holding pattern of competition airfield (if latest arrival time is given).		200
A.9.1.7	Late submission of competition map (after 5 minutes allowance)	100	100