FAI Sporting Code

Fédération Aéronautique Internationale

Section 11 – Humanpowered Aircraft

CLASS I

2011 Edition

Approved by the FAI Air Sport General Commission (CASI) on October 13, 2011

NOTE:
Section 11 and General Section combined make up the complete Sporting Code for Humanpowered Aircraft

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1 FAI Statutes, ...Chapter 1, ...para. 1.6
2 FAI Sporting Code, Gen. Section, ...Chapter 3, ...para 3.1.3.
3 FAI Statutes, ...Chapter 1, ...para 1.8.1
4 FAI Statutes, ...Chapter 2, ...para 2.1.1; 2.4.2; 2.5.2 and 2.7.2
5 FAI By-Laws, ...Chapter 1, ...para 1.2.1
6 FAI Statutes, ...Chapter 2, ...para 2.4.2.2.5
7 FAI By-Laws, ...Chapter 1, ...paras 1.2.2 to 1.2.5
8 FAI Statutes, ...Chapter 5, ...paras 5.1.1, 5.2, 5.2.3 and 5..2.3.3
9 FAI Sporting Code, Gen. Section, ...Chapter 3, ...para 3.1.7
10 FAI Sporting Code, Gen. Section, ...Chapter 1, ...paras 1.2. and 1.4
11 FAI Statutes, ...Chapter 5, ...para 5.2.3.3.7
12 FAI Statutes, ...Chapter 6, ...para 6.1.2.1.3

Chapter 1 CLASSIFICATION

Class I - Humanpowered Aircraft

1.1	Sub-Class I-C	Humanpowered Aeroplanes
1.2	Sub-Class I-D	Humanpowered Aeroplanes with stored energy
1.3	Sub-Class I-E	Humanpowered Rotorcraft
1.4	Sub-Class I-F	Humanpowered Rotorcraft with stored energy
1.5	Sub-Class I-G	Humanpowered Ornithopter
1.6	Sub-Class I-H	Humanpowered Ornithopter with stored energy

Chapter 2 DEFINITIONS

2.1 Humanpowered Aircraft

An aerodyne which takes off and remains airborne using solely the muscular energy of one or more persons on board. It may not employ any systems of static support (gas, hot air, etc.) and may not carry any kind of apparatus which could receive energy during flight but may carry apparatus to store muscular energy after take-off.

2.2 Ornithopter

A machine that achieves and sustains flight by the sole means of flapping wings.

2.3 Flight

A flight by an aircraft starting at Take-off and ending with the Landing.

2.4 Flight performance

The achievement attained during a Flight.

2.5 Completed Flight

A Flight is deemed not to be completed if:

1) An accident occurs during the Flight resulting in the death of any member of the crew within 48 hours

OR

2) Any person leaves the aircraft during the Flight, including at Take-off

OR

3) Any part of the aircraft or its equipment is shed or jettisoned.

2.6 Types of Flight

1) Distance Flight:
A Flight measured for distance from a Departure Point to a Finish Point

2) Duration Flight:
A Flight timed from Take-off to Landing.

3) Speed Flight:
A Flight timed for speed from a Departure Point to a Finish Point.

2.7 Courses

A Course consists of the straight line(s) between a Departure Point and a Finish Point via any Turn or Control Points in the designated or pre-declared sequence.

2.8 Declared Course

A Course declared in advance in writing by the pilot.

2.9 **Types of course**

1) Out-and-return Course: From a Departure Point to a Turn Point with return along the reciprocal course to the Departure Point.

2) Triangular Course: As defined in General Section A 7.3.2. The Finish Line is the same as the Start Line

3) Closed Circuit Course: A Course with more than two Turn Points and the flight may include more than one Lap of the Course and the Departure Point may also be used as a Turn Point in subsequent Laps.
The Finish Line is the same as the Start Line.

2.10 **Lap**

One complete circuit round a Closed Circuit Course starting at the Departure point.

2.11 **Start of a Flight**

Take-off:
The point and/or time at which all parts of the aircraft or its crew cease to be in contact with or connected to the ground or water.

Take-off Place:
The point from which the Take-off is made.

Departure Point:
The Take-off Place or the crossing of a Start Line.

Start Time:
The time at which the aircraft leaves the Departure Point which is the instant when Take-off occurs or when the nose of the aircraft crosses the Start Line.

Start Line:
A gateway of 100m width with the base being specified on the surface of the earth.

2.12 **Turn point**

Definition of a Turn Point:
A clearly defined feature on the surface, or GPS coordinates, which are precisely specified before take-off.

Rounding the Turn Point:
A Turn Point is rounded when the entire aircraft is observed or proven to pass outside the vertical projection of the Turn Point feature or around the specified coordinates.

2.13 **Control Point**

A Control Point is a point, over which the aircraft is required to fly during a Flight along a Course.

2.14 **Designated or pre-declared sequence**

The order in which the Turn or Control Points shall be flown.

2.15 **Finish of a Flight**

The Landing:
The point and/or time at which any part of the aircraft or its crew first touches the ground.

Landing Place:
The precise place at which the Landing is made.

Finish Point:
The Landing Place or the crossing of a Finish Line.

Finish Time:
The time at which the aircraft reaches the Finish Point, which is defined as the instant when the Landing occurs or when the nose of the aircraft crosses the Finish Line.

Finish Line:
A gateway of 100m width with the base being specified on the surface of the earth.

2.16 **Hover**

The act of remaining airborne without significant movement in any direction.

2.17 **Duration**

The time elapsed between the Start Time and the Finish Time.

Chapter 3 RECORDS IN CLASS I

3.1 **Records**

Unless otherwise specified, the following records are recognised in each sub-class.

3.1.1 Straight distance from a Departure Point to a Finish Point.

3.1.2 Distance on an Out and Return Course

3.1.3 Distance around a Triangular Course.

3.1.4 Distance around a Closed Circuit Course.

3.1.5 Duration (no Course need be specified).

3.1.6 Duration in Hover (Sub-class I-E and I-F only).

3.1.7 Speed (Sub-classes I-C, I-D, I-G and I-H only) The record performance is the time taken to fly around a Course as specified in 3.2.3.8

3.2.2 **General Rules**

Chapter 6, General Section of the Sporting Code shall be observed.

3.2.3 **Special Rules**

3.2.3.1 No part of the aircraft shall be jettisoned and no person shall leave the aircraft during the Flight including at Take-off.

3.2.3.2 A ground crew of up to two persons are permitted to assist in stabilising the aircraft during Take-off but they may not assist in accelerating it.

3.2.3.3 The Take-off and Flight must be made from and over an approximately level surface with a slope not exceeding 1:100 in any direction and free from adjacent buildings or other large objects which might impart an upward deflection to the air. The difference in altitude between the Take-off Place and the Finish Point shall not exceed 1:200 of the Flight distance.

3.2.3.4 In the case of a Distance record, at some point during the Flight the lowest part of the aircraft and crew must exceed a height of 2 m above the ground.

3.2.3.5 In the case of a Distance record in a Closed Circuit, provided that at least one complete Lap of the Course has been made, the distance flown shall be measured to a Landing Place along the Course. The Landing shall be made not more than 50 metres outside the line of the Course. If made beyond this limit, the Distance shall be measured to the point at which the aircraft, prior to landing, last exceeded 50 metres from the nearest point of the Course.

3.2.3.6 For Duration in Hover a height of at least 3 m must be reached and the central axis of the rotorcraft must remain within a designated square of not more than 20 m on each side

3.2.3.7 In the case of a Speed record, at the Start and Finish of each record attempt the lowest part of the aircraft and crew must exceed a height of 2 m above the ground.

3.2.3.8 For a Speed record the course shall have three Turn Points with a perimeter of 1500 m. The Start and the Finish Line shall be the same line. This line shall be positioned normal (perpendicular) to and touching at its inner end the mid-point of a side of the course. The length of the line shall not exceed 100 m. The entire aircraft shall be required to pass over this line at the start and finish for the purpose of timing the flight.

3.2.3.9 In the case of a Speed record using stored energy, the aircraft, in the same configuration that was used to fly the timed speed course, shall, in a time period no more than three days before and no more than three days after the day of the record attempt, demonstrate its ability to fly a similar course conforming to these regulations once in the opposite direction, untimed, to qualify for any record.

3.2.3.10 The physical energy of the airborne crew is the only energy that may be stored. All devices and associated equipment used for storing energy shall be regarded as fixed parts of the aircraft. For a speed record, the period for storing energy must not exceed 10 minutes immediately prior to the crossing of the start line. The timed flight will commence at the end of the 10 minutes period or when the nose of the aircraft crosses the start line, whichever is the soonest.
The timed flight will terminate when the nose of the aircraft crosses the finish line on completion of the course.
For a distance record, if the period of storing energy before crossing the start line exceeds 10 minutes, a record attempt is null and void and no record will be recognised.

3.2.3.11 A **new record** must constitute an improvement of **at least 1%** over the preceding one.

3.2.4 Categories of Records

General category – best performance achieved.

Female category – best performance achieved by a woman or by a crew composed of only women.

3.2.5 Claim Statement and Certificates

3.2.5.1 **Claim Statement:**
The claim statement must meet and be in accordance with all the provisions of the Sporting Code, General Section, Chapter 6.

3.2.5.2 **Certificates required:**
In addition to the requirement in 3.2.5.1, each record file shall contain the Flight Certificates listed in 3.2.5.3, which must be signed or countersigned by the Official(s) controlling the record attempt.

3.2.5.3 **Flight Certificates:**

3.2.5.3.1 **Departure Point**

1) Exact location and co-ordinates of the **Take-off** Place

OR

2) Position and length of the Start Line and evidence of crossing the Start Line.

3.2.5.3.2 **Course flown**: Details of course, length and how measured.

3.2.5.3.3 **Turn and/or Control Points**: Name, position and identification marks of Points and evidence that the Points were correctly rounded.

3.2.5.3.4 **Finish Point**:

1) Exact location and co-ordinates of the **Landing Place**

OR

2) Position and length of the Finish Line and evidence of crossing the Finish Line.

3.2.5.3.5 Evidence that the **height** requirements for the record category were achieved during the attempt.

3.2.5.3.6 **Start Time and Finish Time:** Evidence of time recorded.