



FAI SPORTING CODE

SECTION 9 – ROTORCRAFT

CLASS E



2023 Edition

Version 2, March 2024

NOTE: The General Section and Section 9 combined make up the Complete Sporting Code for Rotorcraft

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SPORTING CODE SECTION 9 – March 2023 Edition

This document, the SPORTING CODE - SECTION 9, March 2023 Edition, prepared by the FAI ROTORCRAFT COMMISSION (CIG), takes effect on March 2023.

The modifications and additions approved by the CIG on 30 March 2023, to take effect on the March 2023, are included in this document and will not be published with a separate amendments document.

GLOSSARY OF TERMS AND ABBREVIATIONS

This section amplifies a number of terms and abbreviations which are used in the main text.

Numerical

- | | | |
|----|--|--|
| 1 | (Sporting Code Section) - Aerostats | |
| 2 | (Sporting Code Section) - General Aviation | |
| 3 | (Sporting Code Section) - Gliding | |
| 4 | (Sporting Code Section) - Aeromodelling | |
| 5 | (Sporting Code Section) – Parachuting and Indoor Skydiving | |
| 6 | (Sporting Code Section) - Aerobatics | |
| 7 | (Sporting Code Section) - Hang Gliding and Paragliding | |
| 8 | (Sporting Code Section) - Astronautics | |
| 9 | (Sporting Code Section) - Rotorcraft | |
| 10 | (Sporting Code Section) – Microlights and Paramotors | |
| 11 | (Sporting Code Section) - Human Powered Aircraft | |
| 12 | (Sporting Code Section) - Unmanned Aerial Vehicles | |
| 13 | (Sporting Code Section) - Solar Powered Aeroplanes | |

Alphabetical

ADF	Automatic Direction Finding, a radio-navigation instrument
CASI	Commission d'Aéronautique Sportive Internationale (the Airsport General Commission) of FAI
CVFR	Controlled VFR
DME	Distance Measuring Equipment, a radio-navigation instrument
E	(FAI Class) Rotorcraft
FAI	Fédération Aéronautique Internationale,
GS	General Section of the Sporting Code
h	hour (UTC)
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation (HQ in Montreal, Canada)
IFR	Instrument Flight Rules
kg	Kilogram
km	Kilometre
km/h	Kilometre per Hour
m	Metre
min	Minute, unit of time (UTC)
NAC	National Airsport Control
NM	Nautical mile (equal to 1.8532 km)
PIC	Pilot-in-command
	s Second, unit of time (UTC)
UTC	Universal Time Coordinated
VFR	Visual Flight Rules
VOR	VHF Omni Range, a radio-navigation instrument

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1st CHAPTER: PRINCIPLES

1.1 INTRODUCTION

This Section provides for the international encouragement and control of sporting activities involving rotorcraft.

1.2 GENERAL SECTION OF THE SPORTING CODE

The General Section contains the rules and regulations that apply to all FAI recognised activities.

1.3 DEVELOPMENT AND AMENDMENT

The responsibility for the development and maintenance of Section 9 rests with the FAI Rotorcraft Commission

2.1 DEFINITIONS

The following definitions and classifications apply:

2.1.1 GENERAL DEFINITIONS

- 2.1.1.1 AIRCRAFT: A vehicle that can be sustained in the atmosphere by forces exerted upon it by the air.
- 2.1.1.2 AERODYNE: An aircraft, heavier than air, that can be dynamically sustained in the air by the reaction of the air upon surfaces in relative movement.
- 2.1.1.3 ROTORCRAFT: An aerodyne that derives the whole or a substantial part of its lift from a rotary wing system.
- 2.1.1.4 AUTOGYRO: A rotorcraft which, in its flight, derives most of its lift from an autorotating rotor system not provided with any form of direct power drive.
- 2.1.1.5 HELICOPTER: The helicopter is defined as "a rotorcraft which, in flight, derives substantially the whole of its lift and longitudinal thrust throughout the flight envelope from a power driven rotor system whose axis (axes) is (are) fixed and substantially perpendicular to the longitudinal axis of the rotorcraft."
- 2.1.1.6 COMPOUND HELICOPTER: The compound helicopter is defined as "a rotorcraft which, in flight and at slow speed, derives the substantial proportion of its lift from a rotary wing system but at speed can generate lift and longitudinal thrust from a suitable combination of rotary wing system, fixed lifting surface(s) and auxiliary propulsor(s)."
- 2.1.1.7 MULTI ROTOR HELICOPTER: A multi rotor helicopter is defined as "a rotorcraft with more than two rotors"
- 2.1.1.8 TILT ROTORCRAFT: An aerodyne which derives the whole or a substantial part of its lift for vertical or hovering flight by tilting rotor(s) upwards to a position substantially vertical and in forward flight derives its lift from rotor(s) and / or wings and is capable of autorotation in the event of power failure.
- 2.1.1.9 TILT WING/TILT ENGINE AIRCRAFT
An aircraft capable of both horizontal and vertical flight which, in forward horizontal flight, derives most of its lift from fixed wings and which achieves vertical or hovering flight by tilting the wings or engine(s) upward to position substantially vertical

2.1.2 FLIGHT DEFINITIONS

- 2.1.2.1 A FLIGHT: A flight by an aircraft starting and take-off and ending with the landing containing a Flight Performance to be validated by either an NAC or FAI.
- 2.1.2.2 INCOMPLETE FLIGHT: A flight is deemed to be incomplete if:
 - a) an accident occurs during the flight resulting in the death of any member of the crew within 48 hours or any person leaves the rotorcraft during the flight;
 - b) any part of the rotorcraft or its equipment is shed or jettisoned other than permitted jettisonable equipment, ballast or fuel declared in advance.

2.1.3 TYPES OF FLIGHT

- 2.1.3.1 DISTANCE FLIGHT: A flight measured for distance between the take-off place or a departure point and a finish point.
- 2.1.3.2 POINT TO POINT: A flight from a departure point to a landing place specified in writing before take-off. A flight may be measured for distance or speed.
- 2.1.3.3 ALTITUDE FLIGHT: A flight measured for altitude achieved or maintained. Altitude is defined as the vertical distance from mean sea level.
- 2.1.3.4 TIME TO CLIMB FLIGHT: A flight timed from a lift-off to the time at which a designated height is achieved.

- 2.1.3.5 SPEED FLIGHT: A performance timed for speed between a departure point and a finish point.
- 2.1.4 COURSES
 - 2.1.4.1 A course consists of the straight line(s) between a departure point and a finish point via any turn or control point in the designed or predeclared sequence.
 - 2.1.4.2 APPROVED COURSE: A course measured in advance and approved by a NAC being the shortest distance on the earth's surface between the two points concerned.
 - 2.1.4.3 DECLARED COURSE: A course declared in advance by the pilot.
- 2.1.5 CLOSED CIRCUIT COURSES
 - 2.1.5.1 OUT-AND-RETURN COURSE: A flight to a turn point with return along the reciprocal course to the departure point. FAI shall be notified of the details of the course together with certifying documentation.
 - 2.1.5.2 TRIANGULAR COURSE: A flight around two turn points with return to the departure point.
 - 2.1.5.3 POLYGON COURSE: A flight around a course with three or more turn or control points and with return to the departure point.
 - 2.1.5.4 LAP: A single completed flight around a closed circuit course. A flight may include more than one lap of a course.
- 2.1.6 START OF RIGHT
 - 2.1.6.1 TAKE-OFF: The point and/or time at which all parts of a rotorcraft or its crew cease to be in contact with or connected to the ground or water.
 - 2.1.6.2 TAKE-OFF PLACE: The centre of the airfield or precise place from which the take-off is made.
 - 2.1.6.3 DEPARTURE POINT: Either the take-off place or the crossing of a start line.
 - 2.1.6.4 START TIME: The time of an aircraft at the departure point.
 - 2.1.6.5 START ALTITUDE: The altitude of an rotorcraft above sea level at the departure point.
 - 2.1.6.6 START LINE: A gateway not more than 50 metres in width below 100 agl metres, the base being specified on the surface.
- 2.1.7 TYPES OF START
 - 2.1.7.1 FLYING START: The rotorcraft is airborne when crossing the start point.
 - 2.1.7.2 RUNNING START: The rotorcraft is still in contact with ground or water when crossing the start point.
 - 2.1.7.3 STANDING START: A start by a stationary rotorcraft timed from the giving of a "go" signal.
- 2.1.8 TURN POINT
 - 2.1.8.1 A clearly defined feature on the surface which is precisely specified before take-off.
 - 2.1.8.2 ROUNDING THE TURN POINT: A turn point is rounded when the entire rotorcraft fuselage is observed to pass outside the vertical projection of the centre of the turn point feature or pylon or when the entire rotorcraft is proved to have entered a designated sector outside the angle made by the adjacent legs of the course.
- 2.1.9 CONTROL POINT
 - 2.1.9.1 A control point is a point which an rotorcraft is required to overfly or to land at during the flight along a course.
 - 2.1.9.2 REACHING THE CONTROL POINT: A control point is reached when the rotorcraft is proved to have overflown it, passed outside it or lands at the point.
 - 2.1.9.3 DESIGNATED SEQUENCE: The order in which the turn or control points shall be flown.

- 2.1.9.4 POSITION CHECK POINT: A position check point is a point which the pilot proves to have overflowed during a flight of which the route has not been declared in advance.
- 2.1.10 FINISH OF FLIGHT
- 2.1.10.1 THE LANDING: The point and/or time at which any part of a rotorcraft or its crew first touches the ground, or becomes established on the ground.
- 2.1.10.2 LANDING PLACE: The precise place at which the landing is made.
- 2.1.10.3 FINISH POINT: Either the landing place or the crossing of a finish line.
- 2.1.10.4 FINISH LINE: A gateway of designated not more than 50 metres width below 100 agl metres, the base being specified on the surface.
- 2.1.10.5 CROSSING THE FINISH LINE: The finish line is considered to be crossed when the nose of the rotorcraft cuts the finish line unassisted.
- 2.1.10.6 FINISH TIME: Either the time at which any part of the rotorcraft crosses the finish line or the time at which it lands.

2.2 WEIGHT CLASSIFICATION– CLASS E

In selecting the correct sub-class weight the rotorcraft must weigh less than sub-class above at take-off or its greatest weight during the record attempt.

2.2.1 SUB-CLASS E-1 HELICOPTERS

E-1 a	Take-off weight less than	500.00 kgs
E-1 b	“ “ “ “	1 000.00 kgs
E-1 c	“ “ “ “	1 750.00 kgs
E-1 d	“ “ “ “	3 000.00 kgs
E-1 e	“ “ “ “	4 500.00 kgs
E-1 f	“ “ “ “	6 000.00 kgs
E-1 g	“ “ “ “	10 000.00 kgs
E-1 h	“ “ “ “	20 000.00 kgs
E-1 i	“ “ “ “	30 000.00 kgs
E-1 j	“ “ “ “	40 000.00 kgs
E-1 k	“ “ “ “	50 000.00 kgs
E 1 l	“ “ “ “	60 000.00 kgs

2.2.2 SUB-CLASS E-2 TILT ROTOR

E-2-a	Take-off weight less than	1 000 00 kgs
E-2-b	“ “ “ “	2 000.00 kgs
E-2-c	“ “ “ “	4 500.00 kgs
E-2-d	“ “ “ “	6 000.00 kgs
E-2-e	“ “ “ “	10 000.00 kgs
E-2-f	“ “ “ “	20 000.00 kgs
E-2-g	“ “ “ “	30 000.00 kgs

2.2.3 SUB-CLASS E-3 AUTOGYROS

E 3 a	Take-off weight less than	500 kgs
E 3 b	“ “ “ “	1 000 kgs
E 3 c	“ “ “ “	1 750 kgs
E 3 d	“ “ “ “	3 000 kgs

2.2.4 SUB CLASS M -1 COMPOUND

M-1 a	Take-off weight less than	500.00 kgs
M-1 b	“ “ “ “	1 000.00 kgs
M-1 c	“ “ “ “	1 750.00 kgs
M-1 d	“ “ “ “	3 000.00 kgs
M-1 e	“ “ “ “	4 500.00 kgs
M-1 f	“ “ “ “	6 000.00 kgs

M-1 g	“	“	“	“	10 000.00 kgs
M-1 h	“	“	“	“	20 000.00 kgs
M-1 i	“	“	“	“	30 000.00 kgs
M-1 j	“	“	“	“	40 000.00 kgs
M-1 k	“	“	“	“	50 000.00 kgs
M 1 l	“	“	“	“	60 000.00 kgs

2.2.5

SUB CLASS M - 2 TILT WING/TILT ENGINE

M-2 a	Take-off weight less than	500.00 kgs
M-2 b	“ “ “ “	1 000.00 kgs
M-2 c	“ “ “ “	1 750.00 kgs
M-2 d	“ “ “ “	3 000.00 kgs
M-2 e	“ “ “ “	4 500.00 kgs
M-2 f	“ “ “ “	6 000.00 kgs
M-2 g	“ “ “ “	10 000.00 kgs
M-2 h	“ “ “ “	20 000.00 kgs
M-2 i	“ “ “ “	30 000.00 kgs
M-2 j	“ “ “ “	40 000.00 kgs
M-2 k	“ “ “ “	50 000.00 kgs
M-2 l	“ “ “ “	60 000.00 kgs

2.2.6

METHOD OF PROPULSION

Rotorcraft shall be divided into three groups according to type of power plant.

Group 1 Piston Engine

Group 2 Turbine

Group 3 Electric

Group 4 Piston Electric

Group 5 Turbine Electric

Group 6 other means of propulsion

Where a rotorcraft has mixed propulsion, it will be classified in the higher group number.

2.2.7

RECORD CATEGORIES

Records can be established in two categories

2.2.8

GENERAL CATEGORY: The best performance achieved in the record task

FEMININE CATEGORY The best performance achieved by an exclusively feminine crew. During the entire record attempt all persons on board the rotorcraft are female.

3.1 **ABSOLUTE WORLD RECORDS**

Absolute World Records represent the best performances from all classes of Rotorcraft, regardless of Subclass or method of propulsion.

Four Absolute World Records shall be awarded as follows:

3.1.1 **ABSOLUTE ALTITUDE**: the greatest altitude achieved for a flight performance for Altitude, Altitude with Payload, or Altitude in Horizontal Flight.

3.1.2 **ABSOLUTE DISTANCE**: the greatest distance achieved for a flight performance for Distance or Distance Over a Closed Course.

3.1.3 **ABSOLUTE GREATEST PAYLOAD**: the greatest payload achieved for a flight performance for Greatest Payload.

3.1.4 **ABSOLUTE SPEED**: the greatest speed achieved for a flight performance for Speed Over a 3 Kilometre Course or Speed Over a 15 Kilometre Course.

3.2 **CLASS RECORDS**

3.2.1 **DISTANCE RECORDS**

3.2.1.1 Distance without landing.

3.2.1.2 Distance over closed circuit without landing.

3.2.2 **ALTITUDE RECORDS**

3.2.2.1 Altitude without payload.

3.2.2.2 Altitude with payload.

3.2.2.3 Greatest mass carried to height of 2 000 metres.

3.2.2.4 Time to climb to various heights.

3.2.2.5 Highest take-off

3.2.3 **SPEED RECORDS**

3.2.3.1 Speed over a straight 3 kilometre course at restricted altitude.

3.2.3.2 Speed over straight course with minimum length 15 kilometres and maximum length 25 kilometres.

3.2.3.3 Speed over closed circuit, without landing. Course lengths are 100, 500, 1 000, 2 000 kilometres without payload.

3.2.3.4 Speed over closed circuit, without landing. Course lengths are 100, 500, 1 000, 2 000 kilometres with payload.

3.2.3.5 Speed around the world, eastbound and westbound.

3.2.3.6 Speed over both Earths Poles.

3.2.3.7 Speed over recognised courses.

3.2.3.8 Speed around the world through antipodes (eastbound and westbound)

4.1 **FEMININE RECORDS**

- 4.1.1.1 Feminine records may be established provided that during the entire record attempt all persons on board the rotorcraft are female.

4.2 **IMPROVEMENT IN CONSECUTIVE RECORDS**

- 4.2.1.1 A new record must constitute an improvement over the preceding record of at least:
- 1% in distance records (3.2.1.)
 - 3% in altitude records (3.2.2.)
 - 1% in speed records (3.2.3.)
- 4.2.1.2 A record that is established with a rotorcraft carrying a payload will be broken in its category when a rotorcraft carrying an equal or superior payload accomplishes a better performance.

4.3 **ACCURACY OF MEASUREMENT**

- 4.3.1.1 Measurements involved in a record claim shall be the subject of a detailed report on their accuracy certified by a qualified person or body approved by the NAC concerned.
- 4.3.1.2 Distance records (3.2.1.): in the measurement of the record distance the error must not exceed 0.02%.
- 4.3.1.3 Altitude records (3.2.2.): in the measurement of the record altitude the error must not exceed 1%.
- 4.3.1.4 Speed records (3.2.3.): in the measurement of the record speed the error must not exceed 0.25%.

4.4 **DETERMINATION OF WEIGHT OR WEIGHT CLASSIFICATION**

- 4.4.1.1 The maximum weight of the rotorcraft will determine its weight classification.
- 4.4.1.2 Except for payload records the certified maximum take-off weight may be accepted instead of weighing, provided that adequate and acceptable evidence is given that the actual weight did not exceed the maximum take-off weight
- 4.4.1.3 No fuel, ballast or other disposable matter may be jettisoned after take-off and prior to the completion of the record attempt. No person may parachute from the rotorcraft during a record attempt.

4.5 **MEASURING EQUIPMENT**

- 4.5.1.1 Unless FAI Rotorcraft Commission has determined otherwise any measuring device previously used in any other FAI Air Sport or record may be used in support of record attempts under Class E.
- 4.5.1.2 FAI Rotorcraft Commission will, from time to time, authorise new measuring equipment or procedures to be adopted. Details of this will be available from FAI.

5th CHAPTER: SPECIAL RULES FOR WORLD RECORDS

5.1 DISTANCE RECORDS

5.1.1 GREAT CIRCLE DISTANCE WITHOUT LANDING

- 5.1.1.1 Distances shall be measured as a straight line between the departure point and finish point.
- 5.1.1.2 The course shall be approved or declared.
- 5.1.1.3 Turn points must be overflown
- 5.1.1.4 The course shall not be a closed circuit.

5.1.2 DISTANCE OVER A CLOSED CIRCUIT WITHOUT LANDING

- 5.1.2.1 The course shall be an approved or declared course measured from the departure point with a return to the departure point.
- 5.1.2.2 The take-off place and landing place shall be within a maximum of 10 kilometres of the departure point and will be outside the perimeter of the closed circuit.

5.2 ALTITUDE RECORDS

5.2.1 ALTITUDE WITHOUT PAYLOAD

- 5.2.1.1 The altitude achieved shall be the true altitude measured from mean sea level as defined in the relevant country by the national survey.

5.2.2 ALTITUDE WITH PAYLOAD

- 5.2.2.1 As in 5.2.1.1 above
- 5.2.2.2 Payload may include any disposable matter or material which is not part of the structure of the rotorcraft and which does not contribute to its performance or efficiency on take-off or in flight and any person or persons who are not part of the flight crew and who do not contribute to the flight performance.
- 5.2.2.3 The payload shall be determined at take-off
- 5.2.2.4 No part of the payload may be disposed of or jettisoned the record attempt has been completed.

5.2.3 GREATEST MASS CARRIED TO A HEIGHT OF 2,000 METRES

- 5.2.3.1 Where the take-off place is situated below sea level, a minimum altitude of 2000 metres above sea level shall be reached.
- 5.2.3.2 As in 5.2.2.2 above.
- 5.2.3.3 No fuel, or any equipment or apparatus may be jettisoned before the rotorcraft reaches a height of 2000 metres which must be reached within 20 minutes of take-off.
- 5.2.3.4 No external or auxiliary source of power shall be utilised on take-off or at any time during the record attempt.

5.2.4 TIME TO CLIMB TO VARIOUS HEIGHTS WITH OR WITHOUT PAYLOAD

- 5.2.4.1 The time measured must be that from a standing start to reaching the designated height
- 5.2.4.2 As in 5.2.2.2, 5.2.2.3 and 5.2.2.4 above

5.2.5 HIGHEST TAKE-OFF

- 5.2.5.1 As in 5.2.1.1.
- 5.2.5.2 The touch down/take-off must ensure that the rotorcraft maintains contact with the ground for at least two minutes.

- 5.3 **SPEED RECORDS**
- 5.3.1 **SPEED OVER A STRAIGHT 3 KILOMETRE COURSE AT RESTRICTED ALTITUDE**
- 5.3.1.1 Only an approved course measured in advance may be used.
- 5.3.1.2 The course shall have a clear approach at each end at least 1000 metres in length. Both the course and the approach shall be clearly marked. The maximum height over the course and its approaches shall not exceed 150 metres and the maximum height at any time outside the course shall not exceed 500 metres.
- 5.3.1.3 The rotorcraft shall fly over the course twice in each direction and the speed adopted shall be the average of the four runs rounded down to the nearest whole km/h. If more than four runs are made in the same flight any four consecutive runs may count. The four runs selected must have been achieved within 30 minutes elapsed time and the rotorcraft may not land during the record attempt.
- 5.3.2 **SPEED OVER A STRAIGHT COURSE WITH A MINIMUM LENGTH OF 15 KILOMETRES AND A MAXIMUM LENGTH OF 25 KILOMETRES**
- 5.3.2.1 As in 5.3.1.1 above.
- 5.3.2.2 The course shall have a clear approach at each end of 1000 metres. Both the course and the approaches shall be clearly marked. The altitude over the course is unlimited but should not be below 150 metres.
The height over the course and its approaches may not vary by more than 100 metres. The maximum height at any time during the flight shall not be greater than 2000 metres above the mean height at which the course is flown.
- 5.3.2.3 The rotorcraft shall fly over the course once in each direction, and the speed adopted shall be the average of the two speeds calculated to the nearest km/h below the figure recorded. If more than one run is made during the course of the same flight, any two consecutive runs may be selected to count upon condition that they have been accomplished in opposite directions. The two runs selected must have been achieved within a maximum elapsed time of 45 minutes. No landing shall be permitted during the record attempt.
- 5.3.3 **SPEED OVER A CLOSED CIRCUIT WITHOUT LANDING OF 100, 500, 1000 AND 2000 KILOMETRES WITHOUT PAYLOAD.**
- 5.3.3.1 The distance may be achieved over one or more laps of an approved or declared course.
- 5.3.3.2 Before crossing the start line the rotorcraft shall fly level for the last 1000 metres within a tolerance of 100 metres.
- 5.3.3.3 The altitude of the rotorcraft at the finish line shall not be less than its altitude at the start line.
- 5.3.4 **SPEED OVER A CLOSED CIRCUIT WITHOUT LANDING OF 100, 500, 1000 AND 2000 KILOMETRES WITH PAYLOAD**
- 5.3.4.1 As in 5.3.3 above
- 5.3.4.2 As in 5.2.2.1, 5.2.2.3 and 5.2.2.4 above
- 5.3.5 **SPEED AROUND THE WORLD (EASTBOUND AND WESTBOUND)**
- 5.3.5.1 The course, including the control points, shall be approved in advance by the NACs concerned and must start and finish at the same place, crossing all meridians. The length of the course shall not be less than 36,787,559 kilometres (equal in length to the Tropic of Cancer).
- 5.3.5.2 All control points must be at a latitude of less than 66 degrees 33 minutes (outside the North and South Frigid Zones).
- 5.3.5.3 If, due to circumstances, the final landing cannot be made at the point of departure, the rotorcraft may be timed over the finish line on an alternate point lying beyond the original one (at a greater distance from which the start was made).

- 5.3.5.4 Intermediate landing places, turn or control points must be declared and agreed in advance with the NACs concerned. These may be changed before passing if weather or political refusal prevents the use of any. At least 48 hour's notice must be given.
- 5.3.5.5 Any time spent on the ground between start and finish shall be counted as flying time.
- 5.3.5.6 Repair or replacements of parts of the rotorcrafts rotors and engine(s) are permitted except that the winglets and fuselage may not be changed.
- 5.3.5.7 Crew members may not be changed during the attempt. However, in the cases of an emergency a crew member, other than the pilot-in-command, may leave but must not be replaced.
Passengers may be changed during the attempt.
- 5.3.6 SPEED OVER BOTH EARTH'S POLES
 - 5.3.6.1 The course must start and finish at the same point. The rotorcraft must over fly both geographic poles. A GNSS Flight Recorder must be carried to prove overflight of the Poles.
 - 5.3.6.2 There will be mandatory control points at a latitude of less than 63° 33" (outside the north and south frigid zones.) These will be on both outward and return legs from the geographic pole itself.
 - 5.3.6.3 If due to unforeseen circumstances the final landing cannot be made at the point of departure the rotorcraft may be timed over the finish line on an alternative point lying beyond the original point and a greater distance from which the start was made but within 100 km.
 - 5.3.6.4 Any time spent on the ground between start and finish shall be counted as flying time.
 - 5.3.6.5 Repairs or replacements of rotorcraft components and engines are permitted except that the fuselage may not be changed.
 - 5.3.6.6 Crew members may not be changed during the attempt. In the case of an emergency a crew member, other than the pilot in command, may leave but must not be replaced. Passengers may be changed during the attempt.
 - 5.3.6.7 Pilots shall conform strictly with all local and international operational and safety regulations in force concerning flight within the frigid zones.
- 5.3.7 SPEED OVER RECOGNISED COURSES
 - 5.3.7.1 Speed over recognised course records may be flown between any two cities and/or geographical features designated for that purpose by the NACs of the countries in which they are situated.
 - 5.3.7.2 The minimum distance between the start point and the finish point shall be 250 kilometres. In countries where the NAC has not designated cities or geographical features - or points not designated which are to be used - the NAC organising the attempt will be responsible for obtaining approval of the NAC(s) involved. FAI will be responsible for the approval of cities or geographic points not within Member countries.
 - 5.3.7.3 The start point and the finish point shall be situated within 20 kilometres of the city centre in such a way as the distance flown will not be less than the distance between the city centres, subject to a tolerance of 2% with a maximum of 60 kilometres. However, when geographical features are used the start point and/or the finish point shall be situated at those geographical features.
 - 5.3.7.4 There shall only be one position recognised by FAI for each city or geographical point.
 - 5.3.7.5 Each course shall be the subject of a separate record for the journey out and the journey back, and for the journey out and back.
 - 5.3.7.6 Crews must not be changed.
The speed recorded shall be the speed between the start and finish lines computed as the average speed along the great circle distance, any time spent on the ground being counted as flying time.

- 5.3.8 SPEED AROUND THE WORLD THROUGH ANTIPODES (EASTBOUND AND WESTBOUND)
- 5.3.8.1 The course, including the control points, shall be approved in advance by the NAC's concerned and must start and finish at the same place, crossing all meridians. The length of the course shall not be less than 40,075.16 kilometres (equal in length to the circumference of the equator).
- 5.3.8.2 Two control points must be antipodal points on opposite sides of the earth. A control point must be passed within a 60km radius.
- 5.3.8.3 If due to circumstance the final landing cannot be made at the point of departure, the rotorcraft may be timed over the finish line on an alternate point lying beyond the original one and at a greater distance from which the start was made but within 100km.
- 5.3.8.4 Intermediate landing places, turn or control points must be declared and agreed in advance with the NACs concerned. These may be changed before passing if weather or political refusal prevents the use of any. At least 48 hour's notice must be given.
- 5.3.8.5 Any time spent on the ground between start and finish shall be counted as flying time.
- 5.3.8.6 Repair or replacements of parts of the rotorcrafts rotors and engine(s) are permitted except that the winglets and fuselage may not be changed.
- 5.3.8.7 Crew members may not be changed during the attempt. However, in the case of an emergency a crew member, other than the pilot-in-command, may leave
- 5.4 **TILT ROTOR RECORDS**
- 5.4.1.1 The record attempt shall incorporate after take-off and before landing transition from vertical flight to horizontal flight and vice-versa.

6.1 CLAIMS

- 6.1.1.1 Notice of a preliminary claim for a record must be received by FAI within 7days of its completion as an attempt.
- 6.1.1.2 The file containing all the information and certification necessary to prove that the conditions have been met in support of the record claim must be received by FAI within 120 days of its completion as an attempt.
- 6.1.1.3 FAI can request additional evidence or clarification in support of a record claim.

6.2 CERTIFICATION

- 6.2.1.1 Each record file shall contain all flight certificates necessary to establish full details of the record.
- 6.2.1.2 All certificates must be signed or countersigned by the official(s) controlling the record attempt.
- 6.2.1.3 Official Observers are nominated by the NAC in line with Sporting Code General Section 4.2.1.
In countries where a rotorcraft federation is recognised by the NAC the Officials must be proposed by this organisation.

6.3 CERTIFICATE EVIDENCE

6.3.1 TAKE-OFF (1)

- 6.3.1.1 Name and Position of place of take-off.
- 6.3.1.2 Date and time of take-off.

6.3.2 CERTIFICATION OF START (2)

- 6.3.2.1 Co-ordinates as necessary to completely identify location.
- 6.3.2.2 Altitude limit of crossing, if any.
- 6.3.2.3 Evidence of crossing the line and time of crossing.
- 6.3.2.4 Evidence that the position of the start line complied with record requirements.

6.3.3 COURSE FLOWN (3)

- 6.3.3.1 Details of course including its category.
- 6.3.3.2 Length of course and how measured.
- 6.3.3.3 Marking of course and identifying features of any turn or control point.
- 6.3.3.4 Evidence that course flown complied with record requirements, if any.

6.3.4 CERTIFICATION OF TURN OR CONTROL POINTS (4)

- 6.3.4.1 Name, position and identification marks of points.
- 6.3.4.2 Evidence that points were declared prior to take-off.
- 6.3.4.3 Evidence that points were correctly rounded or reached.

6.3.5 CERTIFICATION OF INTERMEDIATE LANDING AND TAKE-OFFS (5)

- 6.3.5.1 Identification, date and time of any intermediate landings and take-offs made during the record attempt.
- 6.3.5.2 Evidence that the landing places were declared before take-off, if required.

- 6.3.6 CERTIFICATION OF FINISH (6)
 - 6.3.6.1 Identification of finish point, time of crossing and altitude limits if applicable.
 - 6.3.6.2 Evidence that position of finish line complied with record requirements, if any.
- 6.3.7 CERTIFICATION OF LANDING (7)
 - 6.3.7.1 Place and co-ordinates of arrival, landing place and time of landing.
 - 6.3.7.2 Evidence of landing if alternate landing place.
- 6.3.8 CERTIFICATION OF ALTITUDE (8)
 - 6.3.8.1 Altitude or height achieved.
 - 6.3.8.2 Evidence that time and distance altitude was maintained, if applicable.
 - 6.3.8.3 Evidence that height was reached within set time limit, if any.
- 6.3.9 FLIGHT REQUIREMENTS (9)
 - 6.3.9.1 Evidence that flight requirements were met, if any.
 - 6.3.9.2 Evidence that transition to and from horizontal flight complied with record requirements.
- 6.4 **SUPPLEMENTARY CONTROL CERTIFICATES**
- 6.4.1 BAROGRAPH OR FLIGHT RECORDER (10)
 - 6.4.1.1 The original chart of barogram or the file from a flight recorder with atmospheric altitude measurement downloaded by a Official Observer and certified by the OO.
 - 6.4.1.2 Calibration chart for barograph used with date of calibration.
 - 6.4.1.3 Evidence of sealing and unsealing of barograph or flight recorder.
 - 6.4.1.4 Metrological evidence for altitude records.
- 6.4.2 CERTIFICATION OF WEIGHT OF ROTORCRAFT (11)
 - 6.4.2.1 Weight at take-off.
 - 6.4.2.2 Weight, after landing, if applicable, of any payload or ballast carried.
 - 6.4.2.3 Type of payload or ballast and how stored.
 - 6.4.2.4 Evidence that rotorcraft weight complied with class limits.
- 6.4.3 CERTIFICATION OF FUEL AND FUELLING (12)
 - 6.4.3.1 Place(s) and time(s) at which the rotorcraft was refuelled on the ground and/or position and time at which the rotorcraft was refuelled in flight.
 - 6.4.3.2 Evidence that all tanks were sealed after refuelling and before the record attempt and that the seals were intact at the termination of the record attempt. Seals to be checked immediately before and after the record attempt.
 - 6.4.3.3 Evidence that in-flight refuelling did not take place during record attempt.
- 6.4.4 CREW (13)
 - 6.4.4.1 Name of crew at the start of flight. Licence number issuing NAC and end of validity.
 - 6.4.4.2 Evidence that no changes in or additions to the crew were made during the record attempt.
 - 6.4.4.3 Names of any crew leaving for emergency reasons, with details.
- 6.4.5 PAYLOAD (14)

RECORDS CERTIFICATES

Model certificates for use in connection with claims follow hereon.
See Annex 1 to no Annex 14.

7.1 **INTRODUCTION**

- 7.1.1.1 The requirements constitute the basis for the award of the certificates of proficiency. Since, because of the individual national air regulations, it is impossible to stipulate the same wording for all countries, it is only an outline of the minimum requirements which are determined.
- 7.1.1.2 The certificates are valid internationally and serve as proof of an individual pilot's experience and capabilities. They are also recognised as a valid contribution towards flight safety and airmanship.

7.2 **OBJECTIVES**

The objectives of the scheme are as follows:

- 7.2.1.1 To recognise and record defined levels of pilot experience attained by holders of Certificates.
- 7.2.1.2 To encourage the improvement of pilot skills generally and the acquisition of advanced flying experience in particular thus contributing significantly to flight safety.
- 7.2.1.3 To foster the concept of continuation flying training in a manner which will present a reasonable challenge to pilots of all experience levels.
- 7.2.1.4 To identify and bring within reach of all licensed pilots a sequence of recognised standards of achievement toward which their efforts for self-improvement may be directed.

7.3 **TYPES OF CERTIFICATES OF PROFICIENCY**

There are three Certificates: Bronze, Silver and Gold.

The levels of pilot experience achieved throughout the scheme are recognised by the award of the appropriate Certificate when the minimum requirements are met or exceeded. The form and the colour of the badges are valid internationally.

7.4 **REQUIREMENTS FOR CERTIFICATES OF PROFICIENCY**

The following licences are to be submitted and experience to be proved:

7.4.1 **BRONZE CERTIFICATE OF PROFICIENCY**

- 7.4.1.1 A valid licence for rotorcraft, issued according to the regulations of ICAO and by a country member of FAI.
- 7.4.1.2 A Radio Telephony Licence.
- 7.4.1.3 A minimum of 75 hours total flight time, at least 25 hours as a pilot-in-command.
- 7.4.1.4 In addition, one of the following requirements must be met:
 - Landing above 150 metres
 - Type rating, valid or expired, on 2 different types of Rotorcraft
 - Water crossing exceeding 10 minutes
 - Flight Examiner rating
 - IFR rating
 - Instructor rating
 - Night rating

- Participation at one Category 1 or 2 event
- Continuous flight exceeding one hour
- 7.4.2 SILVER CERTIFICATE OF PROFICIENCY
- 7.4.2.1 A minimum of 300 hours total flight time, 200 of which as a pilot-in-command.
- 7.4.2.2 In addition, three of the following requirements must be met:
- Landing above 1000 metres
- Type rating, valid or expired rating on 3 different types of Rotorcraft
- Water crossing exceeding 10 minutes
- Flight Examiner rating
- IFR rating
- Instructor rating
- Multi-engine rating
- Night rating
- Participation at one Category 1 event and one Category 2 event
- Continuous flight exceeding one and a half hours
- Holder of bronze proficiency certificate
- 7.4.3 GOLD CERTIFICATE OF PROFICIENCY
- 7.4.3.1 A minimum of 600 hours total flight time, 400 of which as pilot-in-command.
- 7.4.3.2 In addition, four of the following requirements must be met:
- Landing above 1500 metres
- Type rating, valid or expired rating on 4 different types of Rotorcraft
- Flight Examiner rating
- IFR rating
- Instructor rating
- Multi-engine rating
- Night rating
- Participation at two Category 1 events
- Holder of bronze and silver proficiency certificates
- 7.4.4 SEE ANNEX 15 FOR CLAIM FORMS

8th CHAPTER: COMPETITIONS

- 8.1.1.1 The regulations summarise the general contents of the rules for competitions under FAI Rotorcraft Commission's responsibility. The detailed Competition Rules shall be approved by FAI Rotorcraft Commission and will be issued as an Annex.

9.1 INTRODUCTION

The Circumnavigator Diploma serves to recognise the significant achievements of pilots of powered aerodynes (vehicles governed by Section 2 of the FAI Sporting Code) making around the world flights.

FAI will maintain chronological lists (based on the completion date of the flight) of all diploma holders of each diploma on its website.

9.1.1 Available diplomas

Pilots may obtain only one diploma for each of the four types of flights as follows:

Eastbound
Westbound
Polar
Nonstop

9.2 REQUIREMENTS**9.2.1 GENERAL DIPLOMA REQUIREMENTS**

All diploma flights must meet the following requirements:

- 9.2.1.1 A maximum of twenty control points may be used to satisfy the course distance requirement.
- 9.2.1.2 The course must return to the start point or within 400 kilometres of the start point.
- 9.2.1.3 All flights must be completed within 365 days.
- 9.2.1.4 Applicants must have been onboard the aircraft during the entire flight.
- 9.2.1.5 The aircraft must be flown under its own power along the course.
- 9.2.1.6 The same aircraft must be used throughout the flight. The blades and fuselage of the aircraft may not be replaced. However, replacements of the engine and other components are permitted.
- 9.2.1.7 Only pilots holding a valid FAI Sporting License at the time of the flight and actively engaged in flying the aircraft may obtain the diploma.
- 9.2.1.8 The diploma may not be awarded posthumously.

9.2.2 DESCRIPTION AND SPECIFIC REQUIREMENTS OF EACH DIPLOMA**9.2.2.1 Eastbound diploma**

The eastbound diploma recognises around the world flights travelling from west to east.

The following requirements apply:

- 9.2.2.1.1 The course must be a minimum distance of 27,000 kilometres.
- 9.2.2.1.2 The course must cross all meridians.
- 9.2.2.1.3 All control points must be in an easterly succession.

9.2.2.2 Westbound diploma

The westbound diploma recognises around the world flights travelling from east to west.

The following requirements apply:

- 9.2.2.2.1 The course must be a minimum distance of 27,000 kilometres.
- 9.2.2.2.2 The course must cross all meridians.
- 9.2.2.2.3 All control points must be in a westerly succession.

9.2.2.3 Polar diploma

The polar diploma recognises around the world flights travelling to both Polar Regions. The following requirements apply:

- 9.2.2.3.1 The course must be a minimum distance of 34,000 kilometres.
- 9.2.2.3.2 The flight must have been made to a control point north of 75 degrees North latitude and a control point South of 75 degrees South latitude.
- 9.2.2.3.3 All crossings of the equator must be separated by 90-180 degrees of longitude.
- 9.2.2.4 Nonstop diploma
The nonstop diploma recognises an eastbound, westbound, or polar around the world flight that was made without any intermediate landing.
- 9.2.2.4.1 The following requirements apply:
- 9.2.2.4.2 The flight must meet the general and specific requirements listed above, as appropriate.
- 9.2.2.4.3 The aircraft may not land during the flight. Refuelling in flight may not occur.
- 9.2.3 APPLICATION REQUIREMENTS
- 9.2.3.1.1 Only one application may be submitted per flight. The application must include all pilots who qualify for the diploma. Additional copies of the diploma may be purchased from FAI.
- 9.2.3.1.2 Holders of world records for Speed around the World are not required to complete Part IIa (pages 2-3) of the application.
- 9.2.3.1.3 All diploma applications must be submitted to FAI by the NAC that issued the FAI Sporting License to the applicant. Only the prescribed application form found in Section 2, Annex 5, will be accepted.
- 9.2.3.1.4 All evidence submitted must have originated from an independent source. Passengers, pilots, or other persons onboard the flight may not attest to information concerning the flight, unless they were designated as an Official Observer as part of a record attempt and meet all requirements of General Section, Chapter 5. General press accounts and newspaper articles are not acceptable.
- 9.2.3.1.5 All control point evidence must include the following information:
Date
Place
Aircraft Registry
Name of Pilot
- 9.2.3.1.6 Participants of FAI-sanctioned competitions (see Air Racing, paragraph 8.4) may qualify for the diploma based on information supplied to FAI by the event organiser.