



FAI Sporting Code

DRAFT

*Fédération
Aéronautique
Internationale*

Section 3 – Gliding

CLASS D (Gliders)
Including Class DM (Motor Gliders)

2008 Edition – AL0

This amendment is valid from 1 October 2008

*Avenue Mon-Repos 24
CH-1005 Lausanne
(Switzerland)
Tél.: +41(0) 21/345.10.70
Fax: +41(0) 21/345.10.77
E-mail: sec@fai.org
Web: www.fai.org*

FÉDÉRATION AÉRONAUTIQUE INTERNATIONALE

Avenue Mon Repos 2, CH 1005 – Lausanne, Switzerland

<http://www.fai.org> e-mail: sec@fai.org

Copyright 2008

All rights reserved. Copyright to this document is owned by the Fédération Aéronautique Internationale (FAI). Any person acting on behalf of the FAI or one of its members is hereby authorised to copy, print, and distribute this document, subject to the following conditions:

1. The document may be used for information only and may not be exploited for commercial purposes.
2. Any copy of this document or portion thereof must include this copyright notice.

Note that any product, process or technology described in the document may be the subject of other intellectual property rights reserved by the Fédération Aéronautique Internationale or other entities and is not licensed hereunder.

Rights to FAI international sporting events

All international sporting events organised wholly or partly under the rules of the Fédération Aéronautique Internationale (FAI) Sporting Code¹ are termed *FAI International Sporting Events*². Under the FAI Statutes³, FAI owns and controls all rights relating to FAI International Sporting Events. FAI Members⁴ shall, within their national territories⁵, enforce FAI ownership of FAI International Sporting Events and require them to be registered in the FAI Sporting Calendar⁶. Permission and authority to exploit any rights to any commercial activity at such events, including but not limited to advertising at or for such events, use of the event name or logo for merchandising purposes and use of any sound and/or image, whether recorded electronically or otherwise or transmitted in real time, must be sought by way of prior agreement with FAI. This includes specifically all rights to the use of any material, electronic or other, that form part of any method or system for judging, scoring, performance evaluation or information utilised in any FAI International Sporting Event⁷.

Each FAI Air Sport Commission⁸ is authorised to negotiate prior agreements on behalf of FAI with FAI Members or other entities as appropriate, of the transfer of all or parts of the rights to any FAI International Sporting Event (except World Air Games events⁹) which is organised wholly or partly under the Sporting Code section¹⁰ for which that Commission is responsible¹¹. Any such transfer of rights shall be by "Organiser Agreement"¹² as specified in the current FAI Bylaws Chapter 1, para 1.2 *Rules for Transfer of Rights to FAI International Sporting Events*.

Any person or legal entity accepting the responsibility for organising an FAI Sporting Event, whether or not by written agreement, in doing so also accepts the proprietary rights of FAI as stated above. Where no formal transfer of rights has been established, FAI retains all rights to the event. Regardless of any agreement or transfer of rights, FAI shall have, free of charge for its own archival and/or promotional use, full access to any sound and/or visual images of any FAI Sporting Event, and always reserves itself the right to have any and all parts of any event recorded, filmed and/or photographed for such use, without charge.

1 FAI Statutes, Chapter 1, para 1.6

2 FAI Sporting Code, General Section, Chapter 3, para 3.1.3

3 FAI Statutes, Chapter 1, para 1.8.1

4 FAI Statutes, Chapter 5, paras 5.1.1.2, 5.5, 5.6, and 5.6.1.6

5 FAI Bylaws, Chapter 1, para 1.2.1

6 FAI Statutes, Chapter 2, para 2.3.2.2.5

7 FAI Bylaws, Chapter 1, para 1.2.3

8 FAI Statutes, Chapter 5, paras 5.1.1.2, 5.5, 5.6, and 5.6.1.6

9 FAI Sporting Code, General Section, Chapter 3, para 3.1.7

10 FAI Sporting Code, General Section, Chapter 1, paras 1.2 and 1.4

11 FAI Statutes, Chapter 5, para 5.6.3

12 FAI Bylaws, Chapter 1, para 1.2.2



**Fédération
Aéronautique
Internationale**

Sporting Code Section 3 – Gliders

The FAI Sporting Code for gliders (the “Code”) sets out the rules and procedures to be used to verify soaring performances. The essence of these rules is to ensure that a soaring performance is achieved to a level of proof that is consistent for all flights. When processing the evidence supplied, Official Observers (OO) and the National Airsport Control (NAC) should ensure that these rules are applied in the spirit of fair play and competition.

In Chapter 1 of the Code, a word or phrase appearing in small capital letters indicates that it has a distinct definition as it applies to the Code.

References outside a chapter are by paragraph number.

Text in italic is informational in nature and not part of the rules and regulations of the Code.

Amendment list (AL) record

Formal amendments are published by the FAI Secretariat, acting for the International Gliding Commission (IGC). Within nations, the organisation responsible for National Airsport Control (NAC) for gliding is then responsible for distributing amendments to all holders of Section 3 of the Sporting Code (SC3). This amendment list is for SC3 only – separate lists exist for the annexes to SC3.

A proposal for an amendment to the Sporting Code or its annexes must be submitted to the IGC Bureau at least six months prior to the next IGC Plenary meeting. A proposal must refer to the paragraphs affected and give reasons for the amendment. It is preferable for the proposed change to be in the format of the Code.

The Bureau will review the proposal and determine if it is “substantial” or otherwise, following input from the specialist subcommittee. The Bureau will instruct the specialist subcommittee to process items that are clarifications of existing rules, or prepare discussion papers on substantial proposals for consideration at the next Plenary meeting. At the Plenary meeting, the philosophy behind a substantial amendment will be considered and set. The specialist subcommittee will then draft the Code amendment with Bureau feedback, and have it tested as required. The proposed amendment will then be put on the IGC web site prior to the following Plenary meeting, at which time it will be submitted for approval or rejection. See the action flowchart opposite for details.

A Code clarification becomes effective on 1 October following approval by the Bureau. A substantial change become effective on 1 October following the IGC meeting at which it is approved, except that if it has flight safety implications it may be approved by the Bureau prior to the IGC meeting.

AL #	Action date of AL	Amended by (signature)	Name	Date amended
0	1 Oct 2008	AL0 are original pages		

Fédération Aéronautique Internationale

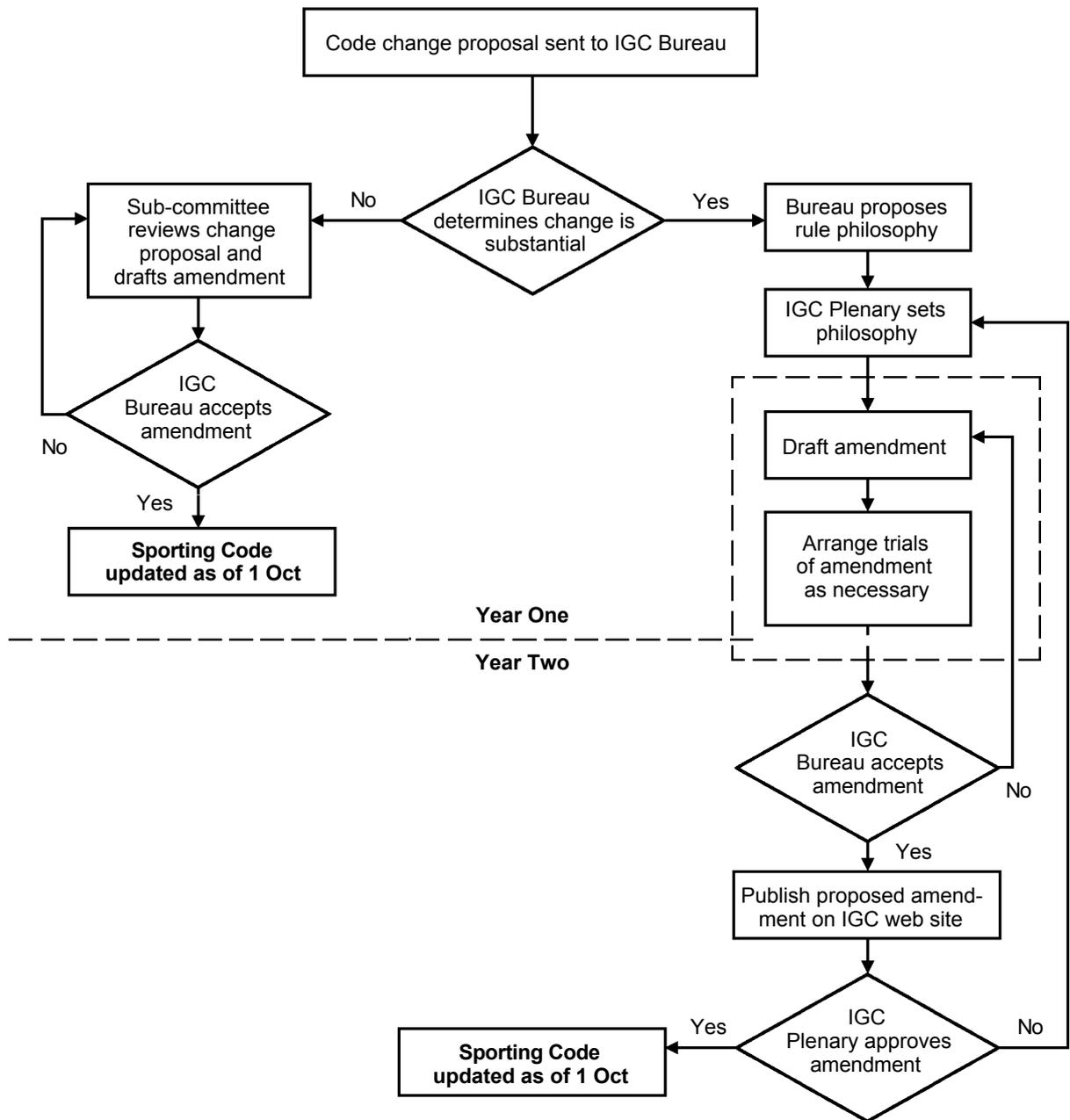
Avenue Mon Repos 24
CH 1005 – Lausanne
Switzerland

Tel: +41 21 345 1070 Fax: +41 21 345 1077

<http://www.fai.org/gliding/>

e-mail: sec@fai.org

Sporting Code review and change process



When amendments have been made to the Code, a copy of the amendment list instructions should be inserted after this page so that, later, the subjects of the amendment may be easily identified. Alternatively, users may download the amended Code from the document page of the FAI web site.

The latest amendments are indicated by a vertical line to the right of any paragraph that has been changed, as shown here.

TABLE OF CONTENTS

<i>paragraph</i>		<i>page</i>
Chapter 1 General rules and definitions		
1.0	Introduction	1
1.1	General definitions	1
1.2	Definitions flight terms	2
1.3	Definitions of soaring measurement terms	2
1.4	Soaring performance types and requirements	3
	Table 1 –Table of tasks and requirements	5
Chapter 2 FAI badges		
2.0	General	6
2.1	Badge requirements	6
2.2	Badge design	7
Chapter 3 World gliding records		
3.0	General	8
3.1	Record categories, classes, and types	8
3.1.4	Table 2 – Types of record flights	9
3.2	Falsification of evidence	9
3.3	Time limits on record claims	9
Chapter 4 Verification requirements and methods		
4.1	Flight data requirements	10
4.2	Declaration	10
4.3	Flight data verification	11
4.4	Calculations and calibrations	11
4.5	Flight evidence requirements	12
	Appendix – Use of COTS GPS units for Silver and Gold badge flights	14
Chapter 5 Official Observers and certification		
5.1	Official Observer authority	15
5.2	Flight certification	16
5.3	Certificates	16
5.4	FAI record claim forms	17
5.5	Submission of claims	17
Chapter 6 Glider classes and international competitions		
6.0	General	18
6.1	Conformity with class rules	18
6.2	Handicapping	18
6.3	Time period for class changes	19
6.4	World championships	19
6.5	Competition classes	19
6.6	International competitions	20
	Index	21

Chapter 1

GENERAL DEFINITIONS and RULES

1.0 INTRODUCTION

- 1.0.1 The General Section of the Sporting Code (GS) contains general definitions and rules that apply to all air sports. This Section (SC3) gives specific rules that apply to FAI badge and record flights in gliders and motor gliders defined in GS 2.2.14 as “Class D” aircraft. A GLIDER is a fixed wing aerodyne capable of sustained soaring flight and having no Means of Propulsion (MoP). A MOTOR GLIDER is a fixed wing aerodyne equipped with a MoP, capable of sustained soaring flight without thrust from the MoP.
- 1.0.2 SC3 includes the following annexes:
- Annex A Contains rules for and other details of world and all other FAI-sanctioned gliding competitions.
 - Annex B Covers requirements for equipment used for flight validation.
 - Annex C Gives non-regulatory guidance, methods and sample calculations to assist Official Observers and pilots in complying with SC3.
 - Annex D Contains the rules for the IGC Ranking list that gives the current World ranking position of pilots in IGC competitions.

The FAI document, “Technical Specifications for IGC-Approved GNSS Flight Recorders” gives information for flight recorder manufacturers. Gliding aerobatic competition is covered in Section 6, hang gliders and paragliders (GS 2.2.1.13, class O) in Section 7, and microlights (GS 2.2.1.15, class R) in Section 10. Gliding championship classes are defined in SC3, Chapter 6.5.

- 1.0.3 Records available within FAI Class D are defined by SC3 in the following sub-classes:
- OPEN any FAI Class D aircraft.
 - 15 METRE any FAI Class D aircraft with a wingspan not exceeding 15,000 mm.
 - WORLD a PW-5 glider as defined in Chapter 7.7.5.
 - ULTRALIGHT an FAI Class D aircraft with a takeoff mass not exceeding 220 kg. (a MICROLIFT glider is an ULTRALIGHT with a wing loading not exceeding 18 kg/m². It does not have separate records).
- 1.0.4 Within SC3, “record” applies to world records, “badge” applies to flights at FAI Silver, Gold, Diamond or Diploma achievement levels and “NAC” refers to each National Airsport Control organization having administrative responsibility for these gliding activities.
- 1.0.5 Terms, rules, and requirements in SC3 are defined first in their most general sense. Where an exception to a general rule exists, it will be described in the text of the Code where the exception occurs. For example, the term “glider” includes “motor glider” unless the difference is relevant in the given text. Reference to a flight recorder implies all recorders if more than one is carried on a flight.

1.1 GENERAL DEFINITIONS

- OFFICIAL OBSERVER** 1.1.1 The person having official control of flights undertaken for FAI badge or record attempts and of the data gathered to prove a SOARING PERFORMANCE (see Chapter 5).
- DECLARATION** 1.1.2 The official preflight description of a SOARING PERFORMANCE with related data (4.2 refers)
- GNSS / GPS** 1.1.3 The Global Navigation Satellite System using multiple satellites operating with receiving stations to create position data. The Global Positioning System (GPS) is one GNSS type.
- FLIGHT RECORDER (FR)** 1.1.4 An electronic device that has been approved by the IGC to record GNSS flight data.

COTS GPS UNIT	1.1.5	A “Commercial Off-The-Shelf” GPS unit that can record horizontal position and time. The Appendix to Chapter 4 defines the approval and use of these units.
BAROGRAPH	1.1.6	An electronic recording barometer incorporated into a FLIGHT RECORDER or a stand-alone mechanical or electronic unit.
BAROGRAM	1.1.7	The altitude data output of a FLIGHT RECORDER or electronic BAROGRAPH or the “trace” recorded by a mechanical BAROGRAPH.
MEANS of PROPULSION (MoP) RECORDER	1.1.8	A device that records the time and altitude of MoP use or the time at which any later MoP use is rendered impossible. A MoP recorder failure must indicate that the MoP is operating.

1.2 DEFINITIONS of FLIGHT TERMS

SOARING PERFORMANCE	1.2.1	The portion of a glider flight from the START to the FINISH.
WAY POINT	1.2.2	A point on the surface of the earth precisely specified by a set of coordinates or by a word description. A WAY POINT may be a START POINT, TURN POINT, or FINISH POINT.
LEG	1.2.3	The straight line between two successive WAY POINTS. The claimed length of a LEG may be reduced as given in 1.3.9.
COURSE	1.2.4	All the LEGS of a SOARING PERFORMANCE. A CLOSED COURSE has the START and FINISH at the same WAY POINT.
OBSERVATION ZONE	1.2.5	The airspace a glider must enter to attain a WAY POINT. An OBSERVATION ZONE (OZ) may be either a CYLINDER (1.3.6) or a SECTOR (1.3.7).
RELEASE POINT	1.2.6	The point on the ground vertically below where the glider releases or ceases to use a MoP.
START / START POINT	1.2.7	The WAY POINT marking the beginning of a SOARING PERFORMANCE at either: <ul style="list-style-type: none"> a. The RELEASE POINT, b. A START POINT declared before flight, or c. A FIX selected post-flight as a “virtual” START POINT on a free record flight.
TURN POINT	1.2.8	A WAY POINT between two LEGS of a flight.
FIX	1.2.9	A single data point selected from recorded flight data giving latitude, longitude, time, and from a FLIGHT RECORDER, pressure altitude.
GOAL FLIGHT	1.2.10	A flight in which the FINISH POINT is declared before flight or is a FIX selected as the START / FINISH POINT of a CLOSED COURSE free record (see 1.4.6). The radius of any START or FINISH OZ SECTOR is 1000 metres and FINISH ALTITUDE and TIME is either at the entry to this sector or taken at any FIX recorded within it.
FINISH /FINISH POINT	1.2.11	The WAY POINT marking the end of a SOARING PERFORMANCE at either: <ul style="list-style-type: none"> a. The landing, where the nose of the glider comes to rest without external assistance, b. A FINISH POINT declared before flight, or c. A FIX selected post-flight as a “virtual” FINISH POINT, or established by starting a MoP.

1.3 DEFINITIONS of SOARING MEASUREMENT TERMS

START ALTITUDE & TIME	1.3.1	The altitude of the glider above sea level at the start and the time it was recorded: <ul style="list-style-type: none"> a. For a START at release, START ALTITUDE and TIME are taken at the RELEASE POINT.
----------------------------------	-------	--

- b. At any START POINT declared before flight, START ALTITUDE and TIME are taken at any one exit from the START OZ SECTOR.
- c. For any free record flight, START ALTITUDE and TIME may be taken at the FIX selected as the START.

Paragraph A.7 to the Chapter 4 Appendix gives provisions for COTS-recorded START and FINISH altitudes and times.

FINISH ALTITUDE & TIME	1.3.2	The altitude of the glider above sea level at the finish and the time it was recorded. <ul style="list-style-type: none"> a. For any FINISH at landing (1.2.11a), FINISH ALTITUDE is the landing site elevation and FINISH TIME is the time of landing. b. For an airborne FINISH (1.2.11b or c), FINISH ALTITUDE and TIME are taken at the entry point to the FINISH OZ SECTOR or at any FIX selected as the FINISH POINT (a virtual finish).
DURATION	1.3.3	The elapsed time between the START TIME and the FINISH TIME.
LOSS OF HEIGHT	1.3.4	The START ALTITUDE minus the FINISH ALTITUDE (4.3.3 refers).
GAIN OF HEIGHT	1.3.5	The greatest altitude difference between a recorded high point and a previous low point during a SOARING PERFORMANCE.
CYLINDER OZ	1.3.6	The airspace in a vertical cylinder of 500 metres radius centred on a TURN POINT.
SECTOR OZ	1.3.7	The airspace above a 90-degree quadrant with its apex at the WAY POINT. It is an option for all TURN POINTS and required at the START and FINISH POINTS. Except as required for GOAL flights (1.3.1 and 1.3.2), the radius of the OZ is unlimited and its orientation is: <ul style="list-style-type: none"> a. For a TURN POINT, symmetrical to and remote from the bisector of the inbound and outbound LEGS at the TURN POINT, b. For a START POINT, symmetrical to and remote from the outbound LEG, c. For a FINISH POINT, symmetrical to and remote from the inbound LEG.
OZ CORRECTION	1.3.8	Each time a LEG crosses a CYLINDER OZ boundary, 500 metres shall be subtracted from the length of that LEG. This correction does not apply where a FIX is used as a WAY POINT in free record performances.
OFFICIAL DISTANCE	1.3.9	The sum of the LEGS, with OZ CORRECTION deducted where applicable, less any applicable LOSS OF HEIGHT penalty. This distance is to be used in any calculation of COURSE speed.

1.4 SOARING PERFORMANCE TYPES and REQUIREMENTS

The following defines all the SOARING PERFORMANCES that may be flown. Table 1 at the end of this chapter repeats the text below in spreadsheet form.

1.4.1 General

- a. A SOARING PERFORMANCE may be claimed from any flight that meets the requirements of proof for that performance. No more than three TURN POINTS may be declared and no more than four LEGS may be claimed for a SOARING PERFORMANCE.
- b. A pre-flight DECLARATION and electronic flight data are required except where specifically not required in these rules.
- c. WAY POINTS must be declared and used in the sequence declared, except where specifically not required in these rules.

1.4.2 Gain of height, absolute altitude, and duration performances

No pre-flight DECLARATION is required for badges. A SOARING PERFORMANCE for absolute altitude must be preceded by a GAIN OF HEIGHT of at least 5000 metres.

1.4.3 Distance performance for badges only

STRAIGHT DISTANCE

A COURSE having one LEG, with OFFICIAL DISTANCE measured from the RELEASE POINT or a START POINT declared before flight to any type of FINISH. If no WAY POINTS are declared before flight, data recording by a stand-alone barograph is sufficient.

1.4.4 Distance performances for badges and records

The following COURSES may be used:

- a. DISTANCE USING UP TO THREE TURN POINTS
A COURSE with distance measured from the RELEASE POINT or a START POINT declared before flight to any type of FINISH, via at least one and not more than three TURN POINTS declared before flight. The START POINT and/or FINISH POINT may be declared and claimed as TURN POINTS if desired. The TURN POINTS must be at least 10 kilometres apart and each may be claimed only once, in the sequence attained.
- b. STRAIGHT DISTANCE TO A GOAL
A COURSE having one LEG, with distance measured from the RELEASE POINT or a START POINT declared before flight to a FINISH POINT declared before flight and achieved as in 1.2.10. If a START POINT declared before flight is claimed, it must be achieved as in 1.3.1b.

1.4.5 Distance and speed performances for badges and records

The following CLOSED COURSES may be used for distance and/or speed performances. All WAY POINTS must be declared before flight, and the START and FINISH must be achieved as in 1.2.10:

- a. OUT AND RETURN FLIGHT. A CLOSED COURSE having two LEGS.
- b. TRIANGLE FLIGHT. A CLOSED COURSE having three LEGS. The pilot may fly either:
 - (i) A triangle having two TURN POINTS.
 - (ii) A triangle having three TURN POINTS independent of the position of the START / FINISH POINT or FIX. The OFFICIAL DISTANCE is given by the sum of the LEGS of the triangle formed by the TURN POINTS. The minimum OFFICIAL DISTANCE is 300 kilometres.

For triangle record COURSES of 750 km or more, the length of each LEG shall be 25% to 45% of the OFFICIAL DISTANCE. For shorter COURSES, no LEG may have a length of less than 28% of the OFFICIAL DISTANCE.

1.4.6 Free distance performances for records only

Free distance may be claimed using any combination of WAY POINTS declared before flight and/or selected FIXES claimed post-flight. The free distance record types are:

- a. FREE STRAIGHT DISTANCE A COURSE having one LEG.
- b. FREE DISTANCE USING UP TO THREE TURN POINTS
A COURSE via at least one, and not more than three TURN POINTS. The START POINT and/or FINISH POINT may be used and claimed as TURN POINTS if desired. TURN POINTS must be at least 10 km apart and each may be claimed only once.
- c. FREE OUT AND RETURN DISTANCE. A CLOSED COURSE flight having two LEGS.
- d. FREE DISTANCE AROUND A TRIANGLE
A CLOSED COURSE having three LEGS. The restrictions on triangle geometry given in 1.4.5b apply. The pilot may fly either:
 - (i) A triangle using two TURN POINTS, or
 - (ii) A triangle using three TURN POINTS independent of the position of the START / FINISH point. The OFFICIAL DISTANCE is given by the sum of the LEGS of the triangle formed by the TURN POINTS.

insert

TASK

TABLE

Chapter 2

FAI BADGES

This chapter defines and gives the requirements to meet the international standard levels of soaring achievement.

2.0 GENERAL

The FAI badges are international standards of achievement that are not required to be renewed. Flights qualifying for badges shall be controlled in accordance with the requirements of this Code. The distance requirement for each badge shall be the calculated official distance (1.3.9).

2.0.1 The pilot must be alone in the glider, and the OO must certify that this was the case.

2.0.2 Each NAC should keep a register of badge flights it has validated.

2.0.3 In addition to the use of IGC-approved FRs, position for the Silver and Gold badges may be verified with NAC-approved COTS GPS units for flights made within that NAC's area of authority.

2.1 BADGE REQUIREMENTS

The soaring performances required to qualify for the FAI badge standards of achievement are:

2.1.1 Silver Badge

The Silver badge is achieved on completing the following three soaring performances:

- a. SILVER DISTANCE a flight on a straight course of at least 50 km. Any leg of 50 kilometres or more of a longer pre-declared course may qualify, subject to the requirements of 4.4.3 on altitude difference applied to the whole course flown.

The Silver distance flight should be flown without navigational or other assistance given over the radio (other than permission to land on an airfield) or help or guidance from another aircraft.

- b. SILVER DURATION a duration flight of at least 5 hours.
- c. SILVER HEIGHT a gain of height of at least 1000 metres.

2.1.2 Gold Badge

The Gold badge is achieved on completing the following three soaring performances:

- a. GOLD DISTANCE a distance flight of at least 300 kilometres,
- b. GOLD DURATION a duration flight of at least 5 hours,
- c. GOLD HEIGHT a gain of height of at least 3000 metres.

2.1.3 Diamonds

There are three Diamonds, each of which may be worn on the Silver or Gold badges, and the badges for flights of 750 kilometres or more. NACs should maintain a register of these badges and, on notification by a NAC, the FAI will enter the names of pilots attaining the three Diamond award in an international register.

- a. DIAMOND DISTANCE a distance flight of at least 500 kilometres.
- b. DIAMOND GOAL a goal flight of at least 300 kilometres over an out-and-return or triangular course (1.4.5a and 1.4.5b).
- c. DIAMOND HEIGHT a gain of height of at least 5000 metres.

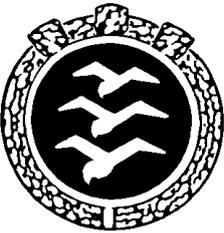
2.1.4 Badges and Diplomas for flights of 750 kilometres and more

These are a family of badges that are achieved on completing a distance flight of 750 kilometres or more, in increments of 250 kilometres (ie. 750 km, 1000 km, 1250 km, etc.). One badge is awarded per flight for the incremental distance immediately less than the distance flown. NACs should maintain a register of these badges and on notification by a NAC, FAI will award a special Diploma for flights of 1000 km and more.

2.2 BADGE DESIGN (reproduced approximately twice real size):



2.2.1 Silver and Gold Badge



2.2.2 Three Diamonds Badge (1 & 2 Diamonds similar)



2.2.3 750 Kilometre and more Badges
(1000 km illustrated, others and with one and two Diamonds, similar.)

Chapter 3

WORLD GLIDING RECORDS

This chapter defines and explains the general handling of FAI world record claims. General rules relating to records are in the General Section of the Sporting Code.

3.0 GENERAL

World gliding record attempts require no advance notice provided that arrangements have been made for controlling the flight. The pilot must possess a valid FAI Sporting Licence (GS 8.1) in order to attempt and to claim a world record. World records must be verified from the flight data of a flight recorder approved by the IGC for world records.

3.1 RECORD CATEGORIES, CLASSES, and TYPES

Record categories are concerned with the pilot, record classes with the glider, and record types with the nature of the soaring performance.

3.1.1 Pilot categories

The General category is for all pilots, and the Feminine category where all members of the flight crew are female.

3.1.2 Glider classes

World records are recognised in the classes listed in 1.0.3. Multi-place gliders and motor gliders are included in these record classes where applicable.

- a. MULTI-PLACE GLIDERS All persons on board the glider must be named on the FR declaration and in full on the claim form and be at least 14 years old. Only flight crew members possessing a valid Sporting Licence will be listed by name in the records of the FAI.
- b. ALTITUDE RECORDS Absolute altitude and gain of height records are listed in both pilot categories but only in the Open record class (3.1.4i and 3.1.4j).

3.1.3 World record achievement margins

- a. A new record claim must exceed the current value by 1 km for distance, 1 km/h for speed, and 3% for altitude.
- b. When a new record category, class, or type is created, a minimum level of performance may be set by the IGC that must be exceeded before a world record will be validated. It may be published in this Code, or published separately by the FAI.

3.1.4 Designation of records

Glider records are designated by code letters, starting with the FAI code letter for gliders (D), then the glider class concerned, and finally the pilot category (general or feminine):

Open Class glider records are designated by adding the letter O.

15m Class glider records are designated by adding the numbers 15.

World Class glider records are designated by adding the letter W.

Ultralight glider records are designated by adding the letter U.

The General pilot category is designated by the letter G.

The Feminine pilot category is designated by the letter F.

Examples: DWF Gliding, World class, Feminine
D15G Gliding, 15 metre class, General

TABLE 2

3.1.4 Types of record flights		<i>Ref.</i>	<i>Remarks (see Chapter 1 for details)</i>
<i>Flight Performance</i>			
<i>Distance records</i>			
3.1.4a	Free Straight Distance	1.4.6a	Way points claimed post-flight
3.1.4b	Free Out-and-Return Distance	1.4.6c	Way points claimed post-flight
3.1.4c	Free Three Turn Point Distance	1.4.6b	Up to 3 turn points claimed post-flight
3.1.4d	Free Triangle Distance	1.4.6d	Way points claimed post-flight
3.1.4e	Straight Distance to a Goal	1.4.4b	Pre-declared goal with no turn points
3.1.4f	Three Turn Point Distance	1.4.4a	Up to 3 pre-declared turn points
3.1.4g	Out-and-Return Distance	1.4.5a	1 pre-declared turn point
3.1.4h	Triangle Distance	1.4.5b	2 or 3 pre-declared turn points
<i>Speed records</i>			
3.1.4i	Speed over an out and return course of 500 km and all multiples of 500 km	1.4.5a	1 pre-declared turn point
3.1.4j	Speed over a triangular course of 100, 300, 750, 1250 km; also 500 km and all multiples of 500 km	1.4.5b	2 or 3 pre-declared turn points
<i>Altitude records</i>			
3.1.4k	Absolute altitude	1.4.2a	Open class only, 5000m gain required
3.1.4m	Gain of Height	1.4.2b	Open class only

3.2 FALSIFICATION of EVIDENCE

Should it be proven that any person involved in a world record claim has altered, concealed, or in any other way misrepresented the claim's evidence with the intent to deceive, the claim shall fail. The FAI will invalidate the Sporting Licences of those guilty of the fraud and may cancel permanently or for a period of time any other award, record, title, etc. it has conferred. The NAC(s) may be asked to cancel the appointment of the OO(s) involved where appropriate (5.1.7 refers).

3.3 TIME LIMITS on RECORD CLAIMS

3.3.1 Claim notice

Notice of a claim for a world record must be submitted by either the NAC or the OO controlling the attempt and must be received by the FAI within seven days of its completion as a record attempt. In exceptional circumstances, the president of the IGC may grant an extension. Telephone, fax, email, and similar types of notification are acceptable. (GS 6.8.4 refers).

3.3.2 Claim documentation

The NAC shall forward claim documentation to reach the FAI within 120 days of the date of the flight, after having approved it as a national record, unless an extension of time has been authorised by the IGC President (GS 6.8.2 refers).

Chapter 4

VERIFICATION REQUIREMENTS and METHODS

This chapter defines the evidence, measurements and calculations required to verify soaring performances. Annex C gives examples of ways and means by which this may be done, such as the calculation of distances, and the method of GNSS flight recorder data analysis.

4.1 FLIGHT DATA REQUIREMENTS

The following flight data must be gathered or measured to provide evidence of the completion of any soaring performance (different soaring performances will require subsets of this list):

- a. declaration (1.1.2)
- b. start point (1.2.7)
- c. start altitude & time (1.3.1)
- d. turn point(s) (1.2.8)
- e. finish point (1.2.11)
- f. finish altitude & time (1.3.2)
- g. absolute altitude (1.4.2)
- h. gain of height (1.3.5)
- i. flight continuity (4.3.3)

4.2 DECLARATION

The last declaration made before take off supercedes all previous ones. Where more than one FR has been used for a flight, the one holding the last declaration shall be considered to be the “primary” FR. If this FR has a failure, a secondary FR may be used for verification. A difference in the declaration on a secondary FR from the primary FR could be grounds for refusal to accept any claim from that flight.

4.2.1 Declaration content

Specific information must be recorded in the form of a declaration prior to a distance and/or speed flight. The information shall be recorded in a FR prior to the flight, or written on a single sheet of paper (for records, only the former applies).

- a. Date of flight
- * b. Name of pilot-in-command and name of crew (if any)
- c. Type and registration of glider
- d. Make, model, and serial no. of each barograph, FR or COTS GPS unit used
- e. Date and time of declaration
- ** f. Way points and the sequence to be flown, start, turn(s), finish/goal as applicable to the specific soaring performance
- ***g. Signature of pilot-in-command
- ***h. Signature & name of OO, with date and time.

* For FRs having only one field for pilot name, enter a crew name on same line following the pilot-in-command, shortening both names as needed to fit, but use full names on the claim.

** Not required for free distance or altitude records, or a straight distance badge flight from the release point to landing.

*** Not required for an electronic declaration entered into an FR.

4.2.2 Use of way point names, codes, and lists in pre-flight declarations

Where way points are identified in the declaration by abbreviations or codes, they must be shown to have existed before the flight and the exact lat/long for each abbreviation or code used must be attached to the claim.

4.3 FLIGHT DATA VERIFICATION

4.3.1 Flight data recording and sampling rate

Except as provided by 4.3.3, barograph pressure data must be recorded throughout the flight. In all cases, flight data must provide indisputable verification of flight continuity and of all altitudes critical to the soaring performance. If data is recorded at intervals, the data sampling rate setting must be no slower than once per minute.

4.3.2 Landing data

The evidence of the actual landing must be by one or more of the following:

- a. By recorded GNSS position data that is independently confirmed (para 4.5.6b refers).
- b. By an OO arriving soon after the event and there is no doubt about the position of landing.
- c. By two witnesses (para 5.2.3d refers).

4.3.3 Flight continuity

There must be evidence that the glider did not land and no MoP was used during the claimed soaring performance. An interruption in barograph-recorded data will not compromise proof of flight continuity provided the OO and NAC are convinced no critical data is missing and the evidence for flight continuity remains indisputable. In the event of failure of the pressure altitude recording by a FR or by a barograph used in conjunction with a COTS GPS unit, evidence of flight continuity may be assessed from a time plot of GNSS calculated altitudes.

The five-hour duration flight does not require a barogram to prove flight continuity if the flight is made under the continual attention of an OO.

4.4 CALCULATIONS and CALIBRATIONS

Time, position, altitude, and MoP use are flight performance data that must be recorded or measured for some or all types of flights. The minimum data required for each type of soaring performance is given in the record and badge application forms.

4.4.1 Combinations of measurement methods

Any mix of measuring methods is acceptable for any type of flight. Each method used shall comply with this Code as if it were the only means of proof employed. Any measurement or calculation inaccuracy is to be interpreted to the maximum disadvantage of the pilot.

4.4.2 Earth model and distance calculations

- a. The WGS84 earth model shall be used for all lat/long data that is recorded for flight analysis (Annex C, Appendix 4 refers). For record flights, distances between two points in excess of 1000 kilometres, and in any case of dispute over a distance, the distance flown is deemed to be the length of the geodesic line joining the start point and the finish point or, if there are turn points, the sum of the geodesic lines for each leg of the course, corrected as in para. 1.3.8.
- b. For badge flights, less accurate distance calculation methods may be used unless the exact distance is critical. Annex C, para xx.yy refers.

4.4.3 Limits to the loss of height

- a. For distance flights of more than 100 kilometres, where the loss of height exceeds 1000 metres, a height penalty equal to 100 times the excess over 1000 metres loss of height shall be subtracted from the length of the course to give the official distance.
- b. For distance flights of 100 kilometres or less, a loss of height exceeding 1% of the length of the course will invalidate the soaring performance.
- c. For speed and duration flights, a loss of height exceeding 1000 metres will invalidate the soaring performance.

4.4.4 **Barograph calibration time limits**

The recording barometer functions of both flight recorders and stand-alone barographs must be calibrated as follows:

- a. **PRIOR TO FLIGHT** Calibration is required within 12 months prior to the flight or, for IGC-approved electronic barographs and FRs, 24 months.
- b. **AFTER FLIGHT** Calibration is required within one month after the flight or, for IGC-approved electronic barographs and FRs, two months.)

For altitude and gain of height records, both (a) AND (b) calibrations are required, and the less favourable of the two shall be used making the calculations for the record. Either (a) OR (b) is required for all other records and badges.

4.4.5 **Calibration correction**

When absolute altitude (not altitude difference) is to be determined, the altitudes reached during a flight from the barograph evidence must be corrected for a height error arising from the actual atmospheric pressure of the day compared to the standard atmosphere.

A method of arriving at a corrected altitude is given in Annex C.

4.5 **FLIGHT EVIDENCE REQUIREMENTS**

4.5.1 **Time evidence**

GNSS time data is used when substantiated by independent evidence confirming take off and landing times and locations. When a stand-alone barograph is used to record altitude and relative times, pertinent time evidence must be determined by an OO based on his or her observations and reconciled against barograph data. The times at which a glider crosses the boundary of a start or finish OZ are determined by linear interpolation between the last fix before crossing and the first fix after crossing.

4.5.2 **Position evidence**

For records, and badge flights greater than Gold level, position data shall be recorded by a flight recorder. For badge flights, position data for a Silver or Gold badge distance flight may be recorded by a flight recorder or a COTS GPS unit. Confirmation of position at specific locations is done by the following:

- a. **POINT OF RELEASE** Point of release shall be taken from FR data or, when a COTS GPS unit is used for a badge flight, release position shall be reconciled with the "notch" recorded by a stand-alone barograph (Appendix to this Chapter refers). If a notch is not evident, the release position may be estimated by the OO or the person who served as the tow pilot or ground launch operator for the flight.
- b. **CLAIMED WAY POINTS** GNSS evidence must show incontrovertible proof the glider was in the correct OZ, with one position fix recorded either exactly on the position of the way point or within the OZ, or else a straight line drawn between two consecutive valid fixes crosses the OZ. Annex C, paras xx.y and zz.y refer.

4.5.3 **Altitude evidence**

Except as provided in 4.3.3 regarding continuity of flight, in-flight altitudes are calculated from pressure data recorded by an FR, or a stand-alone electronic or mechanical barograph as given in the Appendix to this Chapter and SC3 Annex C. The altitudes at which a glider crosses the boundary of a start or finish OZ are determined by linear interpolation between the altitudes at the last fix before crossing and the first fix after crossing.

4.5.4 **Means of propulsion evidence and MoP recorder procedures**

For record attempts and badge flights in motor gliders, MoP recording must be incorporated within an FR. For a record claim, the OO must certify the means by which it was determined that this MoP recorder functioned properly (use Record Form D for records).

For a badge flight in a motor glider NOT equipped for MoP recording, the OO must certify which of the following data control procedures was used:

- a. Before take off, the MoP was sealed by an OO in such a way that the generation of forward thrust will break the seal, and the OO must certify whether the seal was intact after landing.

- b. The MoP was rendered unusable by removing the propeller or an essential engine part, or the MoP had a mechanical lock applied to the retraction system that could not be unlocked until after landing.

4.5.5 **Stand-alone barograph procedures** (Appendix to this Chapter refers)

When a stand-alone barograph is the sole means of data recording or is carried to supplement separately recorded GNSS position data, the following procedures shall be used:

- a. **BEFORE FLIGHT** For mechanical barographs, the OO shall make an identification mark on the barogram paper or foil. For any barograph, the OO seals the barograph and supervises its installation in the aircraft, out of the pilot's reach and free of any cable or mechanism that could alter or adversely affect accurate data recording.
- b. **TAKE OFF and LANDING** The OO shall ensure there is evidence of the times and locations of take off and landing, either by witnessing these events or consulting other witnesses and/or soaring site flight logs.
- c. **DURING FLIGHT** As soon as possible after release, the pilot should establish a low point and make a steep turn so the barogram and position data (if any) clearly indicates the release point. Any marking of a barogram during flight shall be done by remote control, not by direct access to the barograph itself.
- d. **AFTER FLIGHT** For mechanical barographs, the OO shall take control of the barograph, ensure its seal is secure, and the barogram has the identification mark placed on it prior to take off. The information required in paragraph 5.3.2b may then be added to the barogram.

For electronic barographs, an OO must either supervise the transfer or printing of the barographic data while the instrument is in the glider, or supervise its removal from the glider and take charge of it until the flight data is downloaded or printed, then make note of the date and time the flight data was downloaded or printed.

- e. **DATA ANALYSIS** An OO shall determine whether the barograph-recorded altitude data confirms relevant aspects of the claimed performance, considering events witnessed or verified by the OO. Where used to supplement COTS GPS data, its satellite derived altitude record must compare favorably overall to barograph-recorded pressure altitude data.

4.5.6 **GNSS recording procedures**

IGC FR approval is discussed in Annex B Chapter 1 and the Appendix to this Chapter outlines minimum standards for NAC approval of COTS GPS units. The OO shall familiarise himself with the applicable terms of approval, and

- a. **BEFORE FLIGHT** The OO shall verify the installation, set-up, and sealing of the GNSS recorder used. When a COTS GPS unit is used, a written declaration is required (para 4.2.1 refers).
- b. **TAKE OFF and LANDING** An OO shall ensure there is evidence confirming times and points of take off and landing, pilot(s) name(s), glider type and registration, and the type and serial number of the GNSS recorder that is independent of the recording device used.
- c. **DURING FLIGHT** As soon as possible after release, the pilot should make a steep turn so that the GNSS data clearly indicate the release point and altitude. Any pilot inputs into a GNSS recorder must be confined to functions not critical to the validation of the flight, such as entering a pilot event marker or changing the sampling rate in flight.
- d. **AFTER FLIGHT** After landing, the OO shall check any seals that were applied to the GNSS recording device before flight, perform or supervise the transfer of flight data from that device and perform a security check on the resulting data file. Certification of these events and the OO's preliminary review of flight data is required.
- e. **DATA ANALYSIS** Analysis of the flight data shall be performed by a person approved by the NAC, whose duty is to ensure that the appropriate evidence is present to verify the claimed soaring performance. For free record claims, the achieved way points shall be determined from the FR evidence and specified in the claim for the record. Analysis guidelines are in Annex C.

CHAPTER 4 APPENDIX

The use of Commercial, Off-the-Shelf, (COTS) GPS units for Silver and Gold badge flights.

A-1 General Many makes of Global Positioning System units can record the coordinates of their position at intervals. If this data can be downloaded as an .igc file, NACs may allow suitable GPS units to be used to validate the horizontal position of the glider for Silver or Gold badges ONLY. Altitude data must be verified from a separate barograph record of pressure altitude throughout the flight to normal IGC standards. This Appendix may duplicate some rules within Chapters 1 and 4, but only covers COPS GPS units and their use with Silver or Gold badges.

Each NAC is to determine the specific COTS GPS units approved for use within their area of responsibility and to maintain a current list of them. A copy of the technical specification of the unit must be sent to the FAI, for the attention of IGC, with an indication of any special instructions the NAC requires for the use of the COTS GPS unit. The IGC may advise the NAC of any specific problems that could occur with that COTS GPS unit or where it does not comply with IGC rules and procedures. Both IGC and the NAC must be satisfied that the rules below can be complied with before accepting any particular model of GPS unit.

A-2 Earth Model The GPS units must use the WGS 84 earth model and it must not be possible to change this during the flight.

A-3 Averaging and predicted positions Any unit that can produce fixes both derived from real time satellite lines of position and estimated fixes produced through averaging or predicting based on past fixes is acceptable only if the estimation functions are disabled. The OO must supervise the disabling process or verify that it was completed before flight and certify that this was done.

A-4 Frequency of fixes Fix frequency must be at least once per minute.

A-5 Declaration A written declaration including all items listed in 4.2.1(a) through (h) is the only acceptable form.

A-6 Downloading and verification As a minimum, downloaded position data from the GPS unit must be converted as accurately as possible to the IGC format. Any conversion program must be approved by the NAC and include a validation system that will identify any changes made after the download.

A-7 Altitude Altitude evidence must be provided by barograph. The overall profile of COTS GPS-derived altitudes must correspond to the profile of the barographic record and the former may be used only to prove continuity of flight. Where the GPS altitude profile closely matches the barogram, altitude may be determined at a specific fix.

Where altitude within or exit from a Start OZ cannot be correlated to the barogram, release altitude must be used as Start Altitude; where Finish OZ entry or altitude within the FINISH OZ cannot be correlated to the barogram, the elevation of the Finish Point must be used as the Finish Altitude; where a Finish fix cannot be correlated to the barogram, the elevation of the ground at that point must be used as the finish altitude.

A-8 Timing Times pertinent to the flight must be confirmed by an OO, based on direct observation from the ground by the OO or a reliable witness using an accurate timepiece. These times must compare favourably to both COTS GPS data and the relative time data provided by a stand-alone barograph.

A-9 Presence of GPS unit in the glider There must be incontrovertible proof, independent of the COTS GPS data, that the unit was in the glider flown by the pilot claiming the flight performance.

A-10 Before flight The OO must ensure that the unit is positioned, configured or sealed in such a way that controls which could affect the data or allow connection to other devices which may affect the data cannot be used.

A-11 Takeoff and landing The OO must ensure that there is evidence of the point and time of take off and landing. This evidence must be independent of the data produced by the recorder.

A-12 After flight As soon as possible the OO shall check any seals applied before the flight, supervise the download of data from the recorder and perform preliminary analysis of the flight claim. The data in the IGC format shall then be sent, using NAC-specified media and methods, to a NAC-approved person to analyse such data.

A-13 Analysis The analysis of the data must be done in the same manner as the data from a IGC approved FR, including the validation process. However, see A-7 re altitude.

A-14 Other documentation A NAC may require additional verification and proofs as it sees fit.

Chapter 5

OFFICIAL OBSERVERS and CERTIFICATION

5.1 OFFICIAL OBSERVER AUTHORITY

5.1.1 **Official Observer appointment** OOs are appointed by a National Airsport Control (NAC) on behalf of the FAI and IGC. Directors of contests sanctioned by FAI or a NAC are automatically also OOs for badge or record flights undertaken during a contest.

5.1.2 **Official Observer duties** As the FAI and IGC representative, the OO shall control and certificate: record flights and FAI badge flights, flights in international championships and competitions sanctioned by the FAI, and other soaring performances that NACs may specify and define within their sphere of influence.

5.1.3 Control and certification

- a. **CONTROL** The observation of take off, start, finish and landing and, where applicable, timing of individual events such as declarations, sealing, installation, removal and unsealing of barographs and flight recorders, motor glider MoPs and other devices.
- b. **CERTIFICATION** The inspection of evidence and signing of appropriate certificates covering the evidence concerned.

5.1.4 Competence

- a. OOs must be familiar with the Code and have the integrity, skill and competence necessary to control and certify glider and motor glider flights without favour. An OO should be briefed or given training appropriate to the duties of an OO prior to being approved by a NAC. Annex C para 1.4 gives recommended NAC practice to administer OOs.
- b. For world records, the OO must be approved for this role, in writing, by the controlling NAC. Previous satisfactory experience as an OO for FAI badges or national records should be a requirement. Where more than one OO is involved, an OO with the controlling NAC shall oversee and certify that the work of other OOs is correct.
- c. The OO shall be familiar with the operation and limitations of all evidence-gathering equipment used on a given flight. See also Annex C, App 6 para 2.3.

5.1.5 Geographical area of authority

OOs are entitled to control and certificate flights of gliders and motor gliders in:

- a. The country of their own NAC, and in any country and for glider pilots of any nationality if the country's NAC (the controlling NAC) so permits. General Section 6.4 refers.
- b. For world records, the OO must have written approval from the NAC controlling the flight.

5.1.6 Conflict of interest Ref: <http://www.fai.org/documents/otherdocs/code_ethics>

All persons involved in data verification and claim approval must ensure the claim is evaluated objectively according to the rules and procedures required by the Sporting Code and conforming to the FAI Code of Ethics. As such, no person involved in ratifying a world record claim may have any special personal interest in the outcome of that claim, and OOs may not act for any record or badge attempt in which they have any financial interest or in which they are the pilot or passenger.

Ownership of the glider or motor glider shall not be considered "financial interest". The essence is that monetary or other substantial gain shall not depend on the successful certification of the claim by the OO or other individuals concerned.

5.1.7 **Violation of duty** In case of violation of duty, the appointment of the OO shall be withdrawn. In addition, negligent certifications or wilful misrepresentations are grounds for disciplinary action by the NAC concerned. See also 3.2.

5.2 FLIGHT CERTIFICATION

5.2.1 General

The date, times and points of take off and landing on the flight concerned must be verified, and there must be evidence that recording devices used for flight evidence were in the glider concerned during the flight. Record and badge flights shall be certified by the OO by completing and verifying the information in the FAI record claim forms or, for national records or badge performances, claim forms containing similar information.

5.2.2 Official Observer presence at the event

OOs may certify actions (such as sealing and breaking seals, installation and removal of equipment, take off, timing at start and finish, landing, etc.) if they were present at the action for which certification is required, or are able to satisfy themselves either through evidence from persons who witnessed the action or from other reliable sources. Evidence from air traffic control or club flying logs may be used. Barometric pressure may be obtained from the log of a nearby meteorological office.

5.2.3 Certification by non-OOs

- a. Certification of actions by people other than OOs must be countersigned by an OO after verifying the statements.
- b. Air traffic controllers on duty may certify observations of take off, turn and control points and landing time.
- c. Tow pilots or, for launches other than by tow plane, the person supervising the launch may certify the point of release from launch.
- d. Outlandings may be certified by two independent witnesses who provide their names and addresses, and if possible, other contact information such as e-mail addresses and/or phone numbers.

5.3 CERTIFICATES

5.3.1 General

All certifications and calibrations must clearly relate to the flight, event, or equipment being certified or calibrated, and include the date of the certification/calibration, the signature of the person doing the certification/calibration and, where applicable, the OO's signature. Each separate sheet of paper must have this identification. Electronic memory devices storing flight or calibration data must be labeled clearly.

5.3.2 Certificates

- a. PILOT CERTIFICATION OF REGULATORY COMPLIANCE When claiming a badge or record, the pilot must certify that the flight was conducted in accordance with the FAI Sporting Code and was done in compliance with all the glider manufacturer's and national operating limitations and in accordance with national flight regulations respecting airspace use, night flight, etc. (For records, this certification is on the IGC Record Forms A, B, and C.)
- b. BAROGRAPH CALIBRATION CERTIFICATE
The barograph calibration certificate shall include:
 - (i) Type, serial number and altitude range of barograph
 - (i) Date of calibration
 - (iii) Calibration trace, graph or table
 - (iv) Date, name and signature of calibration laboratory official
- c. LANDING CERTIFICATE A landing certificate shall state precisely the location of the landing place and the time of landing.

5.3.3 Barograms

Except as permitted for flight recorders and electronic barographs (see 4.5.5 and 4.5.6), a barogram shall have the following information clearly registered on it:

- a. Identification mark of OO before take off
- b. For altitude and gain of height records, ground level pressure (QFE) at time of take off
- c. Date of flight
- d. Name of pilot
- e. Type, serial number and altitude range of barograph
- f. Type and registration of glider
- g. Altitude of release (or of stopping the MoP for motor gliders)
- h. Proof of no intermediate landing
- i. Date and signature of OO after landing

Additionally, if the barograph is also the MoP recorder:

- j. Means of propulsion was stopped prior to leaving the start point
- k. Means of propulsion was not used between the start point and the finish point

5.4 FAI record claim forms

For claims submitted to the FAI, the current FAI Official Claim Forms approved by IGC must be used. For national records, the NAC may issue its own forms similar to the FAI versions.

Designation	Record type	Remarks
Form A	Absolute Altitude or Gain of Height	
Form B	Distance	
Form C	Speed	
Form D	Motor Gliders	Form D is additional to other forms if appropriate to the claim.
Form E	Completed by all NACs involved.	Must be included with claim file.

The FAI forms are available from the IGC web site <<http://www.fai.org/gliding>>, and in hard copy from the FAI office and NACs.

5.5 SUBMISSION of CLAIMS

OO certification of take off and landing evidence, MoP status, witness statements, and any other data or auxiliary material required by a NAC to support the mandatory evidence (see examples in Annex B, Appendix 1) for a soaring performance shall be forwarded to the NAC using the media and methods the NAC specifies.

- 5.5.1 If the soaring performance was recorded by an FR, send in the original data (the first copy) in the format produced by the FR during download. If conversion to .igc format is done after the download, the .igc file must also be submitted. This process must be performed for all FRs on board during the flight.

For all record claims, a copy of the .igc file along with a record notification is to be sent to the FAI within 7 days (see 3.3.1).

- 5.5.2 If a badge performance was recorded by a stand-alone barograph, send in the original barogram and, if a COTS GPS unit was used, the original data file (the first copy), in the format produced by the COTS GPS unit. Where any conversion to .igc format is done during download or afterward, the .igc file must also be submitted.

Chapter 6

GLIDER CLASSES and INTERNATIONAL COMPETITIONS

6.0 GENERAL

This chapter gives the class structure and some general rules for FAI World Soaring Championships and other international competitions. If a claim is made for a badge or a record during a competition, the requirements of the Code must be fulfilled regardless of the regulations of that competition.

Detailed rules for World Championships and International Competitions are given in Annex A to this code (SC3A) and also in the General Section of the FAI Sporting Code. Where “competition” shows in any of these rules, the rule applies to both World Championships and international competitions.

6.1 CLASS CONFORMITY

6.1.1 Record flights

An OO shall certify that the glider used for a record flight complies with the requirements for the class rules of the record classification involved and shall certify any measurement and checking required.

6.1.2 Competitions

Gliders shall be presented to the competition organiser as prescribed in the local regulations in order to be checked and measured for compliance with class rules.

6.1.3 Measurement of wing span

Wing span, for the purpose of conformity with class rules, is the maximum distance between the two planes tangent to the wing tips and parallel to the glider plane of symmetry and the weight of each wing supported to allow the wing to match its unloaded shape.

The unloaded shape depends on the design of the glider, but will generally mean that the trailing edge is straight along the length of the wing.

6.1.4 Mass limits

A competition may limit the maximum mass of a glider in any class. Any such limit must be stated in the official bid and must be approved by the IGC.

6.1.5 Change of components

Except where allowed in the Championship rules, a glider shall fly throughout a competition as a single structural entity using the same set of wings or wing components, fuselage and tail unit.

6.1.6 Airworthiness certificates

A glider must hold a valid Certificate of Airworthiness or Permit to Fly that does not exclude competition flying and must comply with the conditions of its airworthiness documents.

6.2 HANDICAPPING

The purpose of handicapping shall be to equalise the performance of competing gliders as far as possible. The handicap values used shall be directly proportional to the expected cross-country speeds of gliders in typical soaring conditions for the competition concerned.

If handicapping is to be used, it shall be applied directly to the speed or distance achieved: for finishers, to the speed only, for non-finishers, to the distance only. Competitors completing the task shall not be given less than full distance points, and competitors not completing the task shall not be given more than full distance points. Any list of handicaps proposed for a competition must be approved by the IGC.

6.3 TIME PERIOD for CLASS CHANGES

The minimum period between the announcement and implementation of a new class or major alteration to the rules of an existing class shall not normally be less than four years. Minor alterations not requiring design changes shall normally have two years notice. The IGC may reduce the period of notice for special reasons.

6.4 WORLD CHAMPIONSHIPS

World Soaring Championships are organised in the classes defined below. Women's Championships and Junior Championships may also be organised at the World Championship level. Motor gliders are integrated into the other championship classes (except the World Class) under championship rules for motor gliders (Annex A refers).

6.5 COMPETITION CLASSES

6.5.1 **Open Class** No special rules.

6.5.2 **18 metre Class** The only limitation is a maximum span of 18,000 mm.

6.5.3 **15 metre Class** The only limitation is a maximum span of 15,000 mm.

6.5.4 Standard Class

- a. WINGS The span must not exceed 15,000 mm. Any method of changing the wing profile other than by normal use of the ailerons is prohibited. Lift increasing devices are prohibited, even if unusable.
- b. AIRBRAKES The glider must be fitted with airbrakes that cannot be used to increase performance. Drag parachutes are prohibited.
- c. UNDERCARRIAGE The undercarriage may be fixed or retractable. The main landing wheel shall be at least 300 mm in diameter and 100 mm in width.
- d. BALLAST Water ballast that may be discharged in flight is permitted.

6.5.5 World Class

The World Class glider is the PW-5. No modifications are permitted except as approved and circulated in writing by the FAI to all NACs on behalf of the IGC.

- a. ALTERATION TO AIRFLOW Any alteration affecting airflow around the glider is prohibited. This includes, but is not limited to, the use of turbulence devices, fairings, and special surface treatment. The only exceptions are:
 - (i) a yaw string,
 - (ii) a total energy probe,
 - (iii) adhesive tape to seal gaps between wings, fuselage and tail. Sealing between moveable control surfaces and the airframe is not permitted.
- b. ELECTRICAL DEVICES Electrical and electronic devices are allowed, including instruments and navigational aids.
- c. BALLAST Ballast cannot be jettisoned in flight. In a World Class competition, a flight mass shall be specified between the maximum gross mass and the lowest take off mass attainable by the heaviest entrant. To attain the specified mass, each glider shall incorporate a fixed ballast system approved by the IGC, which may include tail ballast.
- d. CENTRE OF GRAVITY CONTROL Any device capable of altering the centre of gravity location of the glider during flight is prohibited.

6.5.6 Club Class

The purpose of the Club Class is to preserve the value of older high performance gliders, to provide inexpensive but high quality international championships, and to enable pilots who do not have access to gliders of the highest standard of performance to take part in contests at the highest levels.

- a. ENTRY The only limitation on entry of a glider into a Club Class competition is that it is within the agreed range of handicap factors for the competition.
- b. BALLAST Water ballast is not permitted.
- c. SCORING Championship scoring formulas shall include handicap factors.

6.5.7 20 metre Multi-seat Class

- a. ENTRY The 20m Multi-seat Class consists of multi-seat gliders having a crew of two persons. If handicaps are to be used, the glider must have a handicap factor within the range agreed for the competition.
- b. CREW The crew shall consist of two pilots who must represent the same NAC and have a Sporting Licence issued by that NAC. The winning crew shall jointly hold the title of Champion.
- c. WINGS The span must not exceed 20,000 mm.
- d. BALLAST Water ballast that may be discharged in flight is permitted.
- e. SCORING Championship scoring formulas may include handicap factors.

6.6 INTERNATIONAL COMPETITIONS

International competitions may be held in the World Championship classes and in other classes specifically approved by the IGC. Certain championships have a restricted entry:

- a. WOMEN'S CHAMPIONSHIPS Championships in one or more of the approved classes, which are open to female flight crew members only.
- b. JUNIOR CHAMPIONSHIPS Championships in one or more of the approved classes, which are open to pilots whose 25th birthday occurs in the calendar year (1 January to 31 December) that includes the date of the start of the championships, or occurs later.

INDEX

A

achieving goal.....	4.3.4
air traffic controller certification.....	5.2.3b
airworthiness certificate	6.1.6
altitude	
absolute	1.4.2
correction	4.4.5
evidence.....	4.5.3
records	3.1.2b

B

badges	
750 km or greater diplomas.....	2.2.3
design.....	2.2
Diamond leg requirements.....	2.1.3
distance task for badges only	1.4.3
Gold requirements.....	2.1.2
register	2.0
Silver requirements	2.1.1
barogram	
control	4.5.5a, 4.5.5d
definition.....	1.1.7
information required	5.3.2b
barograph	
declaration data	4.2.1d
definition.....	1.1.6
calibration certificate	5.3.2b
calibration period	4.4.4
calibration correction	4.4.5
operational requirement.....	4.3.1, 4.7.2
stand-alone, procedures	4.5.5

C

calibration	
barograph	4.4.4
correction	4.4.5
period	4.4.4
certificates	
airworthiness	6.1.6
barograph calibration	5.3.2b
landing	5.3.2c
regulatory compliance by pilot.....	5.3.2a
certification of actions	
by OOs.....	5.1.2
by non-OOs	5.2.3
championships	
restricted entry, Club class	6.5.6a
change of components.....	6.1.5
claim forms for FAI records.....	5.4
claims submission	3.3.1, 5.5
class	
competition	6.1.2
records	6.1.1
class changes, time scale.....	6.3
classes, FAI, glider	
Class D, DM definitions.....	1.0.3
competition class definitions	6.5
conformity, records.....	6.1
motor gliders integrated	6.4
Multi-seat Class	6.5.7

records	3.1.2
World championships.....	6.4
closed course, definition	1.2.4
Club class specification.....	6.5.6
C of A	6.1.5
competition	
class definitions	6.5
handicapping	6.2
international	6.6
components, change of.....	6.1.5
conflict of interest	5.1.6
continuity of flight.....	4.3.4
coordinates of way points	4.2.3
correction, leg length, cylinder OZ.....	1.3.8
COTS GPS units	
definition.....	1.1.5
requirements for use	Appendix to Chap 4
course, definition	1.2.4
cylinder OZ	1.3.7

D

data analysis	
flight recorder.....	4.5.6e
more than one FR used	4.5.6d
stand-alone barographs	4.5.5e
data sampling rate	4.3.1
declaration	
content	4.2.1
definition.....	1.1.2
requirement for	1.4.1c, 1.4.2, 1.4.6, 4.1a
validity – missed turn point	4.2.2
way point codes in declarations.....	4.2.3
Diamonds, requirements for	2.1.3
diploma, 750 km or greater.....	2.1.4
distance	
calculation methods.....	4.4.1
Diamond.....	2.1.3a
free	1.4.6a
Gold.....	2.1.2a
out and return	1.4.6c, 1.4.5a
Silver	2.1.1a
straight	1.4.3
three turn point	1.4.5b(ii), 1.4.6b
to goal	1.4.4b
triangle	1.4.5b, 1.4.6d
up to 3 turn points.....	1.4.4a, 1.4.6b
duration	
barogram not required.....	4.3.3
definition.....	1.3.3
Gold.....	2.1.2b
no height penalty allowed	4.4.2c
Silver	2.1.1b

E

earth model.....	4.4.2
electronic barographs.....	4.5.5d
evidence	
altitude.....	4.5.3
falsification of	3.2
means of propulsion	4.5.4
position, general	4.5.2

time, general.....	4.5.1
F	
falsification of evidence.....	3.2
FAI	
badge requirements.....	2.1
registers to be kept.....	2.0.2
finish	
altitude and time.....	1.3.2
point.....	1.2.11
fix,	
definition.....	1.2.9
finish.....	1.2.11
flight continuity.....	4.3.3
flight data requirements.....	4.1
flight recorder	
approval document.....	4.5.6
data analysis.....	4.5.6e
definition.....	1.1.4
more than one used.....	4.2
position evidence.....	4.5.2
world record verification.....	3.0.2
free distance record types.....	1.4.6
G	
gain of height, definition.....	1.3.5
General Section of Sporting Code.....	1.0.1
geodesic datum, WGS84.....	4.4.2
glider, classes.....	1.0.3
Gold badge requirements.....	2.1.2
GNSS/GPS	
definition.....	1.1.3
recording procedures.....	4.5.6
goal	
definition of.....	1.2.10
Diamond.....	2.1.3b
H	
handicapping, use of and lists.....	6.2
height	
Diamond.....	2.1.3c
gain, definition.....	1.3.5
Gold.....	2.1.2c
loss, definition.....	1.3.4
penalty, calculation.....	4.4.3a
Silver.....	2.1.1c
I	
identification marks/codes by OO	
barograph.....	5.3.2b
J	
Junior championships.....	6.4, 6.6b
L	
landing	
certificate.....	5.3.2a
verification.....	4.3.2
leg, definition.....	1.2.3
leg length correction.....	1.3.8
loss of height	
1% rule.....	4.4.3b
definition.....	1.3.4
penalty.....	4.4.3a

M	
mass limits in competition.....	6.1.4
Means of Propulsion	
control, with MoP recorder.....	4.5.4a, 4.5.4b
control, without MoP recorder.....	4.5.5
evidence of.....	4.5.4
recorder, definition.....	1.1.5
measurement	
combination of methods.....	4.4.1
definition of terms.....	1.2
wing span.....	6.1.3
Microlift glider, definition.....	1.0.3d
motor glider	
definition.....	1.0.1
championship classes.....	6.4
MoP evidence.....	4.5.4
Multi-place	
records.....	3.1.2a
class definition.....	6.5.7
N	
National Aerosport Control (NAC)	
OO appointment.....	5.1.1
OO geographical control.....	5.1.2, 5.1.5
night flight.....	5.3.2c
O	
observation zone	
definition.....	1.2.5
correction.....	1.3.8
cylinder.....	1.3.6
sector.....	1.3.7
size limit for goal flight.....	1.2.10
official distance, definition.....	1.3.9
Official Observer (OO)	
authority, geographical.....	5.1.5
competence.....	5.1.4
conflict of interest.....	5.1.6
definition.....	1.1.1
duties.....	5.1.2
violation of duty.....	5.1.7
world record ratification.....	5.1.4b
Open Class.....	1.0.3a, 6.5.1
out & return distance.....	1.4.5a, 1.4.6c
outlandings, certification of.....	5.2.3
P	
penalty, height.....	4.4.3
position evidence	
flight recorder data analysis.....	4.5.7e
general.....	4.5.2
R	
record	
altitude, class restriction on.....	3.1.2b
categories, classes, types.....	3.1
claim forms.....	5.4
designation.....	3.1.4
margins.....	3.0.3
minimum performance for.....	3.1.3
multi-place.....	3.1.2a
time limits on submission.....	3.3
types, table.....	3.1.4

registers, badge flights	2.0.2
regulatory compliance	5.3.2c
release point,	
definition	1.2.6
position evidence	4.5.2a

S

sampling rate of FR data	4.3.1
sector OZ	1.3.7
Silver badge requirements	2.1.1
soaring performances, types of	
altitude and duration	1.4.2
distance (badges & records)	1.4.3, 1.4.4
distance & speed (badges & records)	1.4.5
free distances (records only)	1.4.6
general requirements	1.4.1
speed	
no height penalty allowed	4.4.3c
out and return flight	1.4.5a
triangle flight	1.4.5b
sporting licence	3.0.1
Standard Class, specifications	6.5.4
start, definitions	
altitude and time	1.3.1
point	1.2.7
stand-alone barograph procedures	4.5.6
start, evidence for	4.6.2
straight distance to goal	1.4.4b

T

three turn point distance	1.4.4a, 1.4.6b
time	
evidence	4.5.1
reporting limits	3.2
time scale, class definition changes	6.3
tow pilot certification	5.2.3c
triangle flight	
definition	1.4.5b, 1.4.6d
geometry, records	1.4.5b
turn point	
definition	1.2.8
minimum spacing	1.4.4a
types of records, table	3.1.4

U

Ultralight glider, definition	1.0.3d
-------------------------------------	--------

W

way point	
identified by codes/coordinates	4.2.3
declaration required	1.4.1d
definition	1.2.2
wing span, measurement of	6.1.3
Women's championships	6.6a
World championships, classes	6.5
World Class glider	
definition	1.0.3c
specification	6.5.5
world records	3.0
margins	3.1.3a
minimum performance level	3.1.3b
time limits on claiming	3.3.1, 5.5.1
OO requirements	5.1.4b, 5.1.5c, 5.1.6b