



*Fédération
Aéronautique
Internationale*

Section 3 – Gliding

CLASS D (gliders)
including Class DM (motorgliders)

2017 Edition

valid from 1 October 2017

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**The complete Sporting Code for Gliding is the
General Section and Section 3 combined.**

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Changes of note in the 2017 Sporting Code

The most recent amendments to the rules or significant editorial changes made to the text to improve its clarity are indicated by a vertical line to the right of any paragraph that has been changed. Minor editorial changes are not so noted.

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

Loss of height limit of 1000m for duration flights (old 2.4.4b) has been deleted.

Rights to FAI international sporting events

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| | |
|----|--|
| 1 | FAI Statutes, Chapter 1, para. 1.6 |
| 2 | FAI Sporting Code, Gen. Section, Chapter 4, para 4.1.2 |
| 3 | FAI Statutes, Chapter 1, para 1.8.1 |
| 4 | FAI Statutes, Chapter 2, para 2.1.1; 2.4.2; 2.5.2 and 2.7.2 Chapter 1, para 1.2.1 |
| 6 | FAI Statutes, Chapter 2, para 2.4.2.2.5 |
| 7 | FAI By-Laws, Chapter 1, paras 1.2.2 to 1.2.5 |
| 8 | FAI Statutes, Chapter 5, paras 5.1.1, 5.2, 5.2.3 and 5.2.3.3 |
| 9 | FAI Sporting Code, Gen. Section, Chapter 4, para 4.1.5 |
| 10 | FAI Sporting Code, Gen. Section, Chapter 2, para 2.2. |
| 11 | FAI Statutes, Chapter 5, para 5.2.3.3.7 |
| 12 | FAI Statutes, Chapter 6, para 6.1.2.1.3 |

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Chapter 1

GENERAL DEFINITIONS and RULES

1.0 INTRODUCTION

1.0.1 The General Section (GS) of the Sporting Code contains the definitions and rules applying to all air sports. Section 3 (SC3) specifies the rules that apply to FAI badge and record flights in gliders and motor gliders. A glider is a fixed wing aerodyne capable of sustained soaring flight with 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. SC3 includes the following annexes:

- a. Annex A Rules for world and other FAI-sanctioned gliding competitions.
- b. Annex B Requirements for equipment used for flight validation.
- c. Annex C Non-regulatory guidance, methods, and sample calculations to assist Official Observers and pilots in complying with SC3.
- d. Annex D Rules for the world ranking list of pilots participating in IGC sanctioned competition.

The FAI document, *“Technical Specifications for IGC-Approved GNSS Flight Recorders”* gives information for FR manufacturers

1.0.2 Terms, rules, and requirements in SC3 are defined first in their most general sense, and a word or phrase in small capital letters in this chapter indicates that it has a distinct Code definition. Where an exception to a general rule exists, it is described in the Code where the exception occurs. Within the Code, “record” can apply to either or both World and Continental records according to the context, and “badge” applies to flights at FAI Silver, Gold, Diamond or Diploma achievement levels.

1.0.3 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.

Any substantial change is effective on 1 October following the IGC meeting at which it is approved, except that if it has flight safety implications, the Bureau may approve it prior to the IGC meeting. A simple clarification to the Code becomes effective on 1 October following approval by the Bureau. In either case, the amended Code is then placed on the FAI web site at www.fai.org/gliding/sporting_code.

1.1 GENERAL DEFINITIONS

- | | | |
|--|-------|--|
| NATIONAL AIRSPORT CONTROL (NAC) | 1.1.1 | The organization having administrative responsibility for a nation’s sport aviation activities. The duties of a NAC with respect to gliding are defined in 4.1. |
| OFFICIAL OBSERVER | 1.1.2 | The person authorized by a NAC to control flights undertaken for an FAI badge or record attempt and of the data gathered to prove the SOARING PERFORMANCE. |
| DECLARATION | 1.1.3 | The pre-flight listing of pilot, aircraft, and other information pertinent to a given SOARING PERFORMANCE (refer to 2.3 for badges and 3.2 for records). |
| GNSS / GPS | 1.1.4 | A Global Navigation Satellite System such as the Global Positioning System (GPS) using multiple satellites operating with receivers to record position and time data. |
| FLIGHT RECORDER | 1.1.5 | An IGC-approved device to record GPS position and altitude data, as well as pressure altitude. A given FLIGHT RECORDER may be approved for all flights, all badges, or Silver through Diamond badge claims only. |
| POSITION RECORDER | 1.1.6 | A NAC-approved device to record GPS data for Silver or Gold badge claims. |

MEANS of PROPULSION (MoP) RECORDER 1.1.7 A device that records noise level or other data to indicate MoP use.

1.2 DEFINITION of FLIGHT TERMS

SOARING PERFORMANCE 1.2.1 The portion of a glider flight from the START POINT to the FINISH POINT.

WAY POINT 1.2.2 A point specified by a set of coordinates. A WAY POINT may be a START POINT, TURN POINT, or FINISH POINT. If a word description, abbreviation, or code is used in a paper or internet declaration, its coordinates must be taken from a published source designated by the NAC.

LEG 1.2.3 The straight line between two successive WAY POINTS.

COURSE 1.2.4 All the LEGS of a SOARING PERFORMANCE.

TURN POINT 1.2.5 The WAY POINT between two successive LEGS.

OBSERVATION ZONE 1.2.6 The airspace a glider must enter to attain a declared TURN POINT. It is either:

- a. a CYLINDER having a 500m radius and unlimited height, centered on the TURN POINT, or
- b. a SECTOR, a quadrant having unlimited radius and height, with its apex at the TURN POINT and oriented symmetrical to and remote from the bisector of the inbound and out-bound LEGS.

FIX 1.2.7 A single line of recorded data from a FLIGHT RECORDER or POSITION RECORDER containing the time, position and altitude of the glider. The altitude data source may be air pressure or GPS height, depending on the requirement. A FIX does not have an OBSERVATION ZONE.

RELEASE POINT 1.2.8 The WAY POINT where the glider releases or ceases using a MoP.

START POINT 1.2.9 The WAY POINT that marks the beginning of a SOARING PERFORMANCE at either:

- a. the RELEASE POINT, or
- b. declared START coordinates, or
- c. a FIX selected post-flight.

FINISH POINT 1.2.10 The WAY POINT that marks the end of a SOARING PERFORMANCE at either:

- a. where the glider comes to rest on landing, or
- b. declared FINISH coordinates, or
- c. a FIX selected post-flight, or
- d. a FIX established by the starting of a MoP.

CLOSED COURSE 1.2.11 A COURSE requiring the FINISH POINT to be the declared START POINT.

START & FINISH LINES 1.2.12 A 1 km line centered on the START or FINISH POINT. In all cases, a START LINE is perpendicular to the first LEG and a FINISH LINE is perpendicular to the last LEG. For a free CLOSED COURSE using a START FIX, the FINISH LINE is centered on the START FIX.

1.3 DEFINITION of SOARING MEASUREMENT TERMS

START TIME and ALTITUDE 1.3.1 The time and altitude (msl) at which a SOARING PERFORMANCE begins, both determined by the type of SOARING PERFORMANCE and the type of START POINT claimed:

- a. When a declared START POINT is claimed, START TIME and ALTITUDE is taken at the START LINE as the glider crosses in the direction of the first leg.
- b. When a declared START POINT is not claimed, START TIME and ALTITUDE is taken at the RELEASE POINT or alternately, for DURATION and FREE DISTANCE claims, at a FIX selected post-flight.

FINISH TIME and ALTITUDE 1.3.2 The time and altitude (msl) at which a SOARING PERFORMANCE ends, both determined by the type of SOARING PERFORMANCE and the type of FINISH POINT claimed:

- a. For a finish at landing, FINISH TIME is the time of landing and FINISH ALTITUDE is the landing site msl elevation.
- b. When a declared FINISH POINT is required, and for any free CLOSED COURSE, FINISH TIME and ALTITUDE is taken at the FINISH LINE as the glider crosses in the direction of the last leg.
- c. When a declared FINISH POINT is not required, FINISH TIME and ALTITUDE may be taken at the start of a MoP, a FIX selected as the FINISH POINT, or at time of landing, whichever occurs first.

| | | |
|--------------------------|-------|--|
| 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. An excess LOSS OF HEIGHT shall be corrected as given in 2.4.4 for badges and in 3.1.5 and 3.1.6 for records. |
| GAIN OF HEIGHT | 1.3.5 | The recorded altitude difference between a high point and a prior low point. |
| OZ CORRECTION | 1.3.6 | When a TURN POINT is achieved using the CYLINDER OZ, the inbound and outbound LEG lengths are each decreased by 500 metres. |
| OFFICIAL DISTANCE | 1.3.7 | The COURSE distance, less any OZ CORRECTION and/or LOSS OF HEIGHT correction. The OFFICIAL DISTANCE shall be used for the claimed distance and calculating COURSE speed. |

1.4 BADGE AND RECORD REQUIREMENTS

1.4.1 **General** Electronic flight data and a DECLARATION are required except where specifically exempt. Specific SOARING PERFORMANCES place limits on given COURSES as individually defined in 2.2 for badges and 3.1.5 and 3.1.6 for records.

1.4.2 Soaring performance types

- a. **GAIN OF HEIGHT** A SOARING PERFORMANCE conducted per 1.3.5 for a given badge (see 2.2.1c, 2.2.2c and 2.2.3c) or a record (see 3.1.7a).
- b. **ABSOLUTE ALTITUDE** A SOARING PERFORMANCE for maximum altitude (see 3.1.7b).
- c. **DURATION** A SOARING PERFORMANCE required for the Silver badge (2.2.1b) or Gold badge (2.2.2b).
- d. **STRAIGHT DISTANCE** A COURSE without TURN POINTS starting from RELEASE or a declared START POINT.
- e. **GOAL DISTANCE** A COURSE without TURN POINTS, from a declared START POINT to a declared FINISH POINT.
- f. **3 TURN POINT DIST.** A COURSE from the RELEASE POINT or a declared START POINT to any type of FINISH POINT, using one to three declared TURN POINTS in any order.
- g. **OUT & RETURN** A CLOSED COURSE with only one declared TURN POINT.
- h. **TRIANGLE** A CLOSED COURSE via 2 or 3 declared TURN POINTS flown in the sequence declared. When 3 TURN POINTS are used, the COURSE distance is the sum of the legs between the TURN POINTS.
- i. **FREE DISTANCE** A COURSE from any START POINT to any FINISH POINT.
- j. **FREE 3TP DISTANCE** A 3 TURN POINT DISTANCE flight having FIXES for some or all WAY POINTS.
- k. **FREE OUT & RETURN** An OUT & RETURN flight having FIXES for some or all WAY POINTS.
- l. **FREE TRIANGLE** A TRIANGLE flight having FIXES for some or all WAY POINTS.

1.4.3 **Multiple use of way points** A TURN POINT can have the same coordinates as the START or FINISH POINT. If a TURN POINT is to be used twice it must be listed twice in the task declaration.

Table of Badge and Record Requirements

| Soaring performance | SC3 | Use | Declaration contents | Max # of TPs | | Start alternatives | | | Finish alternatives | | |
|-------------------------------------|--------|-----------------|---|--------------|---------|--------------------------------------|-----|------------|---------------------|-----|-------------------------|
| | | | | declared | claimed | Release | Fix | Start line | Land | Fix | Finish line |
| Gain of Height | 1.4.2a | Badge Record | Pilot, glider, & recorder data see 2.3.2a-2d for badges | n/a | n/a | OK | n/a | n/a | n/a | n/a | n/a |
| Absolute Altitude | 1.4.2b | Record only | | n/a | n/a | OK | n/a | n/a | n/a | n/a | n/a |
| Duration | 1.4.2c | Badge only | see 3.2.1a-1d for records | n/a | n/a | OK | OK | OK | OK | OK | OK |
| Straight Distance ⁽¹⁾ | 1.4.2d | | 3 | 0 | OK | No | OK | OK | OK | OK | OK |
| Goal Distance | 1.4.2e | Badge or Record | Pilot, glider, & recorder data as above <i>plus name & coordinates for each declared way point</i> | 3 | 0 | OK if declared | No | required | No | No | required |
| 3TP Distance | 1.4.2f | | | 3 | 3 | OK | No | OK | OK | OK | OK |
| O&R Distance ⁽²⁾ | 1.4.2g | | | 1 | 2 | OK if declared as start/finish point | No | required | No | No | required |
| Triangle (2TP) Dist. ⁽²⁾ | 1.4.2h | | | | | | | | | | |
| Triangle (3TP) Dist. ⁽²⁾ | | 3 | 3 | | | | | | | | |
| Free Distance | 1.4.2i | Record only | Pilot, glider, & recorder data see 3.2.1a-1d declared way points optional | n/a | 0 | OK | OK | OK | OK | OK | OK |
| Free 3TP Distance | 1.4.2j | | | | 3 | | | | | | |
| Free O&R Distance | 1.4.2k | | | | 1 | OK | OK | OK | No | No | required ⁽³⁾ |
| Free Triangle Distance | 1.4.2l | | | | 3 | | | | | | |

NOTES

- *n/a* indicates a parameter not applicable to this soaring performance.
 - *Written and internet declarations are options for badge claims only; all record claims require a flight recorder.*
 - *Silver distance requires a finish fix at least 50 km from release, and may be done on ANY soaring performance.*
- (1) *For straight distance not using a start at release, the start point and its coordinates must be listed in the declaration.*
- (2) *All parameters are equally applicable to out-&-return and triangle speed records.*
- (3) *When a free closed course start is claimed at a start fix, that fix also serves as the center of the finish line.*

Chapter 2

BADGES and BADGE PROCEDURES

See Annex C for examples of ways and means by which badges may be verified, such as the calculation of distances, and FR or PR data analysis methods.

2.0 GENERAL

- a. The FAI Silver, Gold, and Diamond badge flights and the Diploma flights are a set of international soaring achievements that do not need to be renewed. They are awarded by each NAC, who shall maintain a register of the flights it has validated, retaining the pilot's name, nationality, and the dates and details of each flight performance.
- b. The distance requirement shall be the official distance.
- c. The pilot must be alone in the glider.

2.1 BADGE DESIGN



Silver Badge



Gold Badge



Three Diamonds
(1,2 Diamonds similar)



750+ km Badges
1000 km shown,
others similar

2.2 BADGE REQUIREMENTS

- 2.2.1 Silver Badge** The Silver badge is achieved on completing these soaring performances:
- a. SILVER DISTANCE a straight distance flight of at least 50 km from the release point.
The Silver distance should not be flown with guidance from another pilot.
 - b. SILVER DURATION a duration flight of at least 5 hours.
 - c. SILVER HEIGHT a gain of height of at least 1000 metres.
- 2.2.2 Gold Badge** The Gold badge is achieved on completing these soaring performances:
- a. GOLD DISTANCE a distance flight of at least 300 kilometres as defined in 1.4.2d to 1.4.2h.
 - b. GOLD DURATION a duration flight of at least 5 hours.
 - c. GOLD HEIGHT a gain of height of at least 3000 metres.
- 2.2.3 Diamonds** There are three Diamonds; each may be achieved separately by completing one of the soaring performances below and each may be mounted on the Silver or Gold badge:
- a. DIAMOND GOAL a distance flight of at least 300 kilometres over an out-and-return (1.4.2g) or triangle (1.4.2h) course. There is no restriction on the triangle geometry.
 - b. DIAMOND DISTANCE a distance flight of at least 500 kilometres as defined 1.4.2d to 1.4.2h.
 - c. DIAMOND HEIGHT a gain of height of at least 5000 metres.
- 2.2.4 FAI Diploma flights** FAI Diploma flights begin with a minimum distance of 750 km and increase in 250 km increments. They may use any course defined in 1.4.2d through 1.4.2h. A Diploma is awarded once only for the incremental distance immediately less than the distance flown.

2.2.5 **Diamond and Diploma badge registration** On completion of all three Diamonds or any Diploma flight, the NAC shall provide the FAI with the information held in its national register per 2.0a. In turn, the FAI will enter the name of the pilot in an international register, and award the pilot a Diploma to recognise these flights.

2.2.6 **Allowed use of flight recorders** In-flight data must be from an FR approved at level 3 (“Up to Diamonds”) or higher, or the “controlling NAC” (see 4.1b) may approve use of a Position Recorder (PR) for Silver or Gold badge flights as in 2.6. Diploma flights require a Level 2 FR (“All Badges & Distance Diplomas”) or higher.

When more than one FR/PR is on board the flight, only those units selected by the pilot for use and which have been inspected (“controlled”) by an OO shall be used for flight claim evidence. The OO shall note the type and serial number of each controlled FR/PR.

2.2.7 **Official Observer duties** OOs shall perform all pre- and post-flight control actions and review related to a badge claim, following applicable SC3 rules and FR/PR Approval Document procedures. This may be done by more than one OO.

2.3 DECLARATION REQUIREMENTS

A declaration (1.1.3) is required for all badge claims recorded as an .igc file by an FR/PR. The FAI may deny any claim where the validity of the declaration is in doubt.

2.3.1 **Declaration handling** A declaration can be electronic (stored in FR), written (on paper), or internet (via email or web etc).

- a. A declaration may be made at any time before the flight, and the last declaration made before take-off is the only one valid for that flight.
- b. A written/internet declaration is an option for FR-recorded flight and mandatory for PR-recorded flight. When a subsequent written/internet declaration is made, it must be presented to and countersigned by same OO as the original declaration.
- c. If multiple written/internet declarations are made for a single flight, the original of every paper declaration and an electronic copy of each internet declaration shall be submitted with the claim.
- d. For Silver or Gold badge claims only, if the pilot or glider information is omitted or incorrect in the FR declaration, the OO certificate required by 4.4.1c shall take precedence.

See Annex C-2.6 for general notes on declarations and C-6.4 on the format of a declaration as it appears in an .igc file. Consult the FR manufacturer’s user manual to determine which method a FR uses to record declaration date and time.

2.3.2 Declaration content

For all claims recorded on a FR or PR:

- a. Date of flight.
- b. Pilot name.
- c. Glider type, and its registration or serial number or unique NAC-assigned contest number.
- d. The make, model and serial number of the FR as recorded in the .igc file of the flight. When a PR is used, the make, model and serial number as verified by the OO before take-off.

In addition, the following task information is also required for a flight having declared way point(s):

- e. Way point coordinates.

In addition, for any FR or PR-recorded claim using a written declaration on paper:

- f. Pilot and OO signature(s) with date and time of signing.

2.4 FLIGHT EVIDENCE REQUIREMENTS

The OO certifying the claim shall follow 4.4.1. For any requirement not witnessed by the OO, the appropriate verification certificate is given in 4.4.2b-2e.

2.4.1 **Time evidence** GPS time data shall be substantiated by independent evidence of take-off time. The 5-hour duration task may be flown with no FR or PR if it is under the continual attention of an OO, who shall control the task as given in 4.3.3.

- 2.4.2 **Position evidence** Position data is required only for distance claims, and may be recorded by an FR or a PR for Silver or Gold badge flights. An FR shall be used for Diamond and Diploma flights. Evidence of position shall be gathered as follows:
- a. **RELEASE POINT** The release point (or MoP stop) shall be taken from the recorded in-flight data. As soon as possible after release, the pilot should descend or make a steep turn so the data clearly indicates the release point. The release point shall be taken at the start of this descent or turn (see SC3C-10.8a).
 - b. **START/FINISH LINE** Where a start line and/or finish line is required, position evidence from a FR or PR must show that the glider crossed it. A start and/or finish line is not required for duration, straight distance, or 3TP distance flights.
 - c. **TURN POINTS ACHIEVED** Position evidence from a FR or PR must show that a fix was recorded within the OZ or a straight line between consecutive fixes passes through the OZ.
 - d. **FINISH FIX** When a finish fix is claimed, its position shall be taken from the GPS position data.

2.4.3 **Altitude evidence**

- a. Barometric data from a calibrated FR on board shall be used if available.
- b. If pressure data is not available or the FR calibration period has lapsed, GPS height data from a FR or PR may be used for Silver and Gold tasks, provided that a 100 metre error margin is applied to all pressure height requirements of the Code (example: the gain of height is at least 1100 metres for Silver altitude). *Example is given in SC3C-3.3.*
- c. The altitude at which a glider crosses a start or finish line is determined by linear interpolation between the altitudes at the last fix before crossing and the first fix after crossing.

2.4.4 **Loss of height limits for badge flights**

- a. For distances greater than 100 kilometres where the LoH exceeds 1000m using barometric data or 900m using GPS height data, an adjustment of 100 times the excess LoH shall be subtracted from the length of the course.
- b. For distances of 100 kilometres or less, the flight is invalid if the LoH exceeds 1% of the distance using barometric data or [1% of course distance less 100m] using GPS height data.

2.5 **DATA CALCULATIONS, CALIBRATIONS and VERIFICATION**

- 2.5.1 **Flight continuity** The FR/PR position data must show the glider did not land and a MoP was not used during the soaring performance. An interruption in altitude data will not compromise proof of flight continuity provided that the OO and NAC are convinced that no critical data is missing and the evidence remains indisputable. Evidence of flight continuity may also be assessed from a time plot of the GPS height data.
- 2.5.2 **Barometric recording calibration** The barometric recording function of a FR or PR (if incorporated) must be calibrated within 5 years prior to the flight or within 2 months after the flight.
- 2.5.3 **FR/PR recording procedures** The OO should be familiar with the applicable terms of approval of any FR being used. For each controlled FR/PR used:
- a. **BEFORE FLIGHT** The OO shall inspect the installation of each unit as required by its approval document, including sealing if necessary (SC3C-7.3a refers). The type and serial number of any independent MoP recorder used shall also be noted. The data sampling rate must be set to at least once per minute.
 - b. **TAKE-OFF and LANDING** Use evidence independent of the FR(s) or PR(s) to verify the times and points of take-off and landing, pilot name, glider type and registration. If the landing was not witnessed, the OO shall complete a landing certificate per 4.4.2e.
 - c. **AFTER FLIGHT** After landing, an OO shall check any seals applied. The OO shall supervise or perform the transfer of data and examine the data for completeness, and achieved way point fixes shall be determined from the evidence and as specified in the badge claim. The .igc file analysis shall be done by any knowledgeable person (guidance is in Annex C, Section 10).

2.5.4 **MoP evidence** The OO shall certify the means used to determine that a MoP was not used during the soaring performance (see 4.3.1b and 4.3.2). The required evidence is specified in the approval document for the MoP recording device used.

2.5.5 **Distance calculation method** If the distance achieved clearly exceeds the requirement, the value calculated by common flight analysis software may be used. For Diploma flights greater than 1000 km, or if the exact distance is critical to achieving the soaring performance, the FAI World distance calculator shall be used set to the WGS84 earth model. SC3C-1.7c refers.

2.6 THE USE OF POSITION RECORDERS

2.6.1 General

- a. Many GPS devices can record the coordinates of their position. If this data can be transferred in the format of an .igc file, NACs may allow these position recorders (PRs) to be used to validate the horizontal position of the glider for Silver or Gold badge flights. Altitude evidence may also be certified subject to the restriction given in 2.4.3b.
- b. NACs shall approve the specific types of PRs for use within their area of responsibility and to maintain a current list of them. A specimen PR-approval document is on the IGC web site and should be used as a basis, modified with the characteristics of the PR concerned. Approval documents for PRs that comply with the Sporting Code will be posted on the IGC website by GFAC.
- c. NACs should consult GFAC for advice prior to beginning the approval process for a given PR as there may be known problems with it or it may have been found to not comply with IGC rules and procedures. Guidance on PR operation and the approval process is given in SC3C-6.2 and 6.3.
- d. Flight recorders that have lost their IGC approval may, with NAC approval, be suitable to use as PRs if the requirements in 2.6.2 and 2.6.3 are met.

2.6.2 **Averaging and predicted positions** Any PR that can produce estimated fixes by averaging or predicting based on past fixes is acceptable only if the estimation function is disabled. The OO must supervise the disabling process or verify that it was completed before flight and certify that this was done.

2.6.3 **Data transfer and verification** Data transferred from the PR must be converted as closely as possible to the .igc format. Any transfer and conversion program should be approved by the NAC and include a means of identifying any change to the .igc file made after the initial transfer.

Chapter 3

RECORDS and RECORD PROCEDURES

This chapter defines the record types and the evidence, measurements and calculations required to verify them. Annex C gives examples of the means by which this may be done.

3.0 GENERAL

- a. No advance notice for a record attempt is required.
- b. The pilot must possess a valid FAI Sporting Licence issued by their NAC or the FAI (GS-3.1).
- c. With the exception of a flight having a crew as defined in 3.1.3b, a World record claim must first be approved as a National record – a Continental record does not.

Note: National records are controlled by their own NAC, not the FAI, and can differ from or be additional to World or Continental record types.

- d. The Continental regions defined in GS-2.5 will be used, with the exception that the part of Russia east of the 61° meridian will be assigned to Asia. A flight that crosses the border between Continental regions will be credited to the region in which the flight started.
- e. A record claim shall fail should any person involved in the claim alter, conceal, or in any other way misrepresent the evidence with the intent to deceive. The FAI will withdraw 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. A NAC may be asked to cancel the appointment of the OO(s) involved where appropriate (see 4.2.2).

3.1 RECORD CATEGORY, CLASS, and TYPE

Record category relates to the pilot, record class to the glider used, and record type to the soaring performance claimed. When a new record class or type is created, a minimum performance level may be set by the IGC and published on the FAI web site.

3.1.1 **Pilot category** General category includes any pilot. In the Female category, all persons aboard the glider must be female.

3.1.2 **Record class** FAI Class D glider records are in the following classes:

- a. OPEN any FAI Class D glider.
- b. 15 METRE any FAI Class D glider with a wingspan not exceeding 15,000 mm.
- c. 13.5 METRE any FAI Class D glider with a wingspan not exceeding 13,500 mm.
- d. ULTRALIGHT an FAI Class D glider 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).

3.1.3 Multiplace gliders and motor gliders

- a. When a multiplace glider is being used, all flight crew must be identified on the task declaration, be named in full on the claim form, and be at least 14 years old. Only flight crew possessing a valid Sporting Licence will be named in the FAI records register.
- b. When the pilot and flight crew claim a world record using a multiplace glider, they may act as a team. Each crew member must hold a Sporting Licence, and the claim will be registered to the declared pilot-in-command.

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

- a. Open Class glider records designated by adding the letter O
- b. 15m Class glider records designated by adding the number 15
- c. 13.5m Class glider records designated by adding the letter 13
- d. Ultralight glider records designated by adding the letter U

- e. General pilot category designated by the letter G.
 - f. Female pilot category designated by the letter F.
- Example: *D13F* Gliding, 13.5 metre class, Female

3.1.5 **Distance records** A new record claim must exceed the current value by 1 km. If the loss of height (LoH) between the start point and the finish point is greater than 1000 metres, the achieved distance shall be reduced by **100(LoH – 1000m)** metres to give the official distance.

- a. Goal distance Declared start and finish point with no turn points (TPs).
- b. Free distance Any start and finish point with no TPs.
- c. Out-and-return distance Closed course with declared start/finish and only 1 TP declared.
- d. Free Out-and-return dist. Closed course with 1 TP selected from a position fix.
- e. 3 TP distance Release or declared start point to any finish, via 1 to 3 declared TPs.
- f. Free 3 TP distance Start, finish, and 1 to 3 TPs selected from position fixes.
- g. Triangle distance Closed course, declared start/finish with 2 or 3 declared TPs.
- h. Free triangle distance Closed course with 2 or 3 TPs selected from position fixes.

3.1.6 **Speed records** A new record claim must exceed the current value by 1 km/h. A loss of height between the start point and finish point greater than 1000 metres will invalidate the claim.

- a. Out & Return speed Course as in 3.1.5c with a distance of 500 km or multiples of 500 km.
- b. Triangle Speed Course as in 3.1.5g with distances of 100, 300, 500, 750, 1250 km, or greater multiples of 500 km. A record may be claimed for the declared course and any shorter triangle in compliance with the applicable leg length requirements.

3.1.7 **Altitude records** A new record claim must exceed the current value by 1% for altitude using pressure data or 150m using GPS data. Altitude records are limited to Open class gliders.

- a. Gain of Height See 1.3.5.
- b. Absolute altitude There must be a gain of height of at least 5000m over the start altitude.

3.1.8 **Triangle geometry** For triangle and free triangle courses of 750 km or more, the length of each leg shall be 25% to 45% of the official distance. For courses shorter than 750 km, no leg may have a length of less than 28% of the official distance.

3.2 DECLARATION REQUIREMENTS

3.2.1 **Declaration content** All record flights require an declaration that includes the information listed below. The last declaration made before take-off is the only one valid for that flight.

- a. Date of flight.
- b. Name of the pilot-in-command, and the flight crew if any.
- c. Glider type, and its registration or serial number or unique NAC-assigned contest number.
- d. The make, model and serial number of the FR.
- e. Waypoint coordinates, when required.

See Annex C-2.7 for general notes on declarations and C-6.4 on the format as it appears in an .igc file. The FR user manual will give the method used to record declaration date and time.

3.2.2 **Declarations from more than one FR** Only those units selected by the pilot for use and which have been inspected (“controlled”) by an OO shall be used for flight claim evidence. The .igc file from each controlled FR must be submitted (see also 3.5). Except for the declaration time stored, the task declarations must be identical. The FAI reserves the right to deny any claim where the validity of the declaration is in doubt.

3.3 FLIGHT CONTINUITY

- a. The flight data must show there was no intermediate landing by the glider and a MoP was not used during the soaring performance.

- b. An interruption in barometric data will not compromise proof of flight continuity provided the OO and NAC are convinced that no critical data is missing and the evidence remains indisputable.

Note: Evidence of flight continuity can be assessed from a time plot of the GPS height data.

3.4 CALCULATIONS and CALIBRATIONS

3.4.1 Measurement/calculation inaccuracy Any measurement or calculation inaccuracy related to the flight data is to be interpreted to the maximum disadvantage of the pilot.

3.4.2 Calibration requirements For distance and speed claims, the FR's barometric function must be calibrated within 5 years prior to the flight or within 2 months after the flight. Both calibrations are required for altitude and gain of height records, with the less favourable of the two used to make the calculations.

3.4.3 Earth model and distance calculations WGS84 shall be the model used for all position recording, and the length of geodesic line(s) joining successive way points shall be used to determine leg distance(s).

3.4.4 Pressure altitude correction When absolute altitude is to be determined, pressure altitudes recorded during flight must be corrected for both instrument error and non-standard atmospheric pressure. *Guidance is given in SC3C-3.5 and 3.6.*

3.5 FLIGHT EVIDENCE REQUIREMENTS

When more than one FR is on board the flight, only those units selected by the pilot for use and which have been inspected ("controlled") by an OO shall be used for flight claim evidence, and the .igc file from each shall be analysed. The OO shall note the type and serial number of each controlled FR.

The .igc file must be from a controlled FR approved at the "all flights" level. The OO shall be familiar with the applicable approval document. *Terms of approval for FRs are described in SC3B Chapter 1.*

3.5.1 Time evidence GPS data shall be used, substantiated by independent evidence confirming take-off and landing times and locations. Start or finish time is determined by linear interpolation between the last fix before crossing and the first fix after crossing the start or finish line.

3.5.2 Position evidence Position evidence shall be taken from the FR .igc file.

- a. **RELEASE POINT** The position data shall clearly indicate the release point (or MoP stop). If a release point is to be used for the start, the pilot should descend or make a steep turn as soon as possible after release. The release point shall be taken at the start of this turn or descent. *Guidance is given in SC3C-10.8a.*
- b. **START/FINISH LINE** Where a start line and/or finish line is required, the position data must show that the glider crossed it per 1.3.1 and 1.3.2. A start and/or finish line crossing is not required for straight distance, 3TP distance, or free record tasks.
- c. **TURN POINTS ACHIEVED** When a turn point is not required to be declared, a fix is selected post-flight. For declared turn points, the position data must show that a fix was recorded within the OZ or a straight line between consecutive valid fixes passes through the OZ.

3.5.3 Altitude evidence

- a. Up to 15,000 metres, pressure data recorded by an FR shall be used.
- b. Above 15,000 metres, GPS altitude data from an FR approved for high altitude use (HAFR) shall be used. *See Annex B and the Technical Specifications for IGC FRs for procedures.*
- c. For altitude flights, both GPS and pressure altitude shall be recorded. The resulting profiles of the GPS and pressure altitudes must correspond to ensure no anomaly is present in the evidence.
- d. For a gain-of-height record claim having a high point above 15,000 metres, the evidence for the low point shall also come from GPS altitude data.
- e. The altitude at which a glider crosses a start or finish line is determined by linear interpolation between the altitudes at the last fix before crossing and the first fix after crossing.

3.5.4 **Means of propulsion evidence and MoP recorder procedures** The OO shall certify in Record Form D (see 3.6) the means used to determine that the MoP recorder functioned correctly.

3.5.5 **FR recording procedures** To maintain control of the FR and its .igc file, the OO shall:

- a. **BEFORE FLIGHT** Verify the installation and set-up of each FR from which an .igc file will be submitted. The data sampling rate must be set to at least once per minute.
- b. **TAKE-OFF and LANDING** Use evidence independent of the FR(s) to confirm the times and points of take-off and landing, pilot name(s), glider type and registration, and the make, model, and serial number of each FR used. See 4.4.2e for a landing having no witnesses.
- c. **AFTER FLIGHT** Inspect any seals applied to each FR before flight and either perform or supervise the transfer of the .igc file from each device. Perform a security check on each file using the appropriate validation program and review the file for completeness. If the file is to be sent to another person for complete analysis, the following shall be forwarded:
 - The original data on the memory device (the first copy). This must include the .igc file, and the file in its original format (if different) as transferred from each device immediately after landing.
 - The appropriate claim form(s), including OO's evidence that any manually recorded times and exact locations for the flight correspond to the equivalent flight recorder data.
- d. **ANALYSIS** With the exception of a member of the flight crew, analysis of the data shall be performed by a person approved by the NAC. The analyst shall ensure the appropriate evidence is present to verify the record claim. Achieved way point fixes shall be determined from the FR evidence and as specified in the record claim. Analysis guidance is given in SC3C-10.

3.6 FAI RECORD CLAIM FORMS

For claims submitted to the FAI, the current IGC-approved FAI claim forms must be used. Forms are available from the IGC web site <<https://www.fai.org/page/igc-documents>>, and in hard copy from the FAI office and NACs. For national records, the NAC may issue its own forms similar to the FAI versions.

- a. **Form A** Absolute altitude or Gain of Height records (Open class only)
- b. **Form B** Distance records
- c. **Form C** Speed records
- d. **Form D** Motor glider records. Form is additional to other forms if appropriate to the claim.
- e. **Form E** Completed by all NACs involved. Form must be included with claim file.

3.7 TIME LIMIT on CLAIMS

Notice of a record claim must be submitted by the NAC or the OO controlling the flight, and the FAI must receive the claim within seven days of the flight. In exceptional circumstances, the president of the IGC may grant an extension. Telephone, fax, e-mail, and similar types of notification are acceptable.

The NAC shall forward claim documentation to reach the FAI within 120 days of the date of the flight unless an extension of time has been authorised by the IGC President (GS-6.8.1 refers).

Chapter 4

OFFICIAL OBSERVERS and CERTIFICATION

4.1 NATIONAL AIRSPORT CONTROL

The National Airsport Control (NAC) has administrative responsibility for a nation's sport aviation activities, such as issuing Sporting Licences. The verification of national records and other responsibilities are often delegated to the national gliding body. In SC3 and Annex C, NAC refers to either body. See Annex C-1.2 and 1.3 for recommended practices by NACs.

- a. **ORGANISING NAC** The pilot's nationality or residency determines the NAC responsible for issuing them a Sporting Licence. This NAC, the organising NAC, also certifies the pilot's achievement and, in the case of an International record, the record claim dossier going to the FAI, regardless of where the record attempt took place.
- b. **CONTROLLING NAC** When a record or badge flight originates in a country other than that of the organising NAC, the NAC of the host country shall control the flight and may appoint OOs of the organizing NAC to act on its behalf if it so chooses. If allowed by the controlling NAC, the OO may forward the completed claim directly to the organizing NAC.
- c. If a controlling NAC does not exist or is inactive in a country, the organizing NAC may control a record or badge flight there. If the organizing NAC is not sure of the current FAI status of a country, it shall contact sports@fai.org (or sec.gen@fai.org if FAI Sports is unavailable).

4.2 OO REQUIREMENTS

4.2.1 **Appointment and jurisdiction** OOs are appointed by their organizing NAC on behalf of the FAI. Directors of competitions sanctioned by FAI or a NAC may act as OOs for badge or record flights undertaken during a contest. OOs serve within the jurisdiction of the appointing NAC and may control flights made by glider pilots of any nationality if the controlling NAC so permits.

4.2.2 **Duties** As representatives of the FAI, OOs oversee FAI badge and record attempts, and other soaring performances a NAC may define within its authority. In case of violation of duty by an OO, the appointment of the OO shall be withdrawn. In addition, negligent certifications or willful misrepresentations are grounds for disciplinary action by the NAC concerned.

4.2.3 Competence

- a. OOs must be familiar with the Code and pertinent air regulations, and have the integrity, skill, and competence necessary to control and certify them. An OO should be given training appropriate to the duties of an OO prior to being approved by a NAC.

SC3C-1.3 gives recommended practices for NAC administration of OOs.

- b. The OO shall be familiar with the operation and limitations of all evidence recording equipment used on the flight. See also SC3C-10.8 and SC3C Appendix 5-1.3.
- c. The OO must be approved, in writing, by the OO's NAC to certify and/or verify a World or Continental record. Previous satisfactory experience as an OO for badges or national records should be a prerequisite.

4.2.4 Conflict of interest

All persons involved in data verification and claim approval must conform to the FAI Code of Ethics, evaluating the claim objectively according to the rules and procedures of the Code. As such, no one involved in ratifying a World or Continental record claim may have a 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 shall not be considered "financial interest". In essence, monetary or other substantial gain shall not depend on the successful certification of the claim by the OO or other individuals concerned.

4.3 FLIGHT CONTROL and VERIFICATION

Refers to OO actions taken to ensure the integrity of evidence supporting a badge or record claim, and the required evidence gathering and evaluation functions performed in relation to the flight.

- 4.3.1 **Pre-flight control actions** For each FR or PR, an OO must perform the actions required by 2.5.3a for badge flights or 3.5.5a for records and, if used:
- A written declaration for a badge flight is certified by adding the date and time and signing it (2.3.1b refers),
 - For motor glider flights, verify the means used to detect MoP use (see 2.5.4 for badges or 3.5.4 for records).
- 4.3.2 **Post-flight control actions** For each FR or PR, an OO must perform the actions required by 2.5.3c for badge flights or 3.5.5c for record flights. Complete FAI Claim Forms (see 3.6) for a record flight or NAC equivalents for a badge flight.
- 4.3.3 **Verification** The OO certifying the claim shall verify the aircraft flown, crew name(s), and the times and locations of take-off and landing based on personal observation, supplemented if necessary by the written flight logs maintained at the take-off and landing site(s). In the latter case, the OO shall attach to the claim form legible photocopies of the pertinent flight logs. If any required detail is not verified as above, the appropriate verification certificate given in 4.4.2 is required.

4.4 CERTIFICATES

A certificate is a written statement signed by a person who has first-hand knowledge that the statement is true. Whether part of a pre-printed claim form or provided as an attachment, any required certificate must clearly relate to the flight, contain the information required, and be signed by the appropriate person(s). Calibration certificates excepted, any person signing a certificate shall also provide his or her name, address and, if possible, contact phone number or e-mail address.

- 4.4.1 **Certification by OO** More than one OO may be involved in a flight claim. Individual certificates pertaining to portions of flight evidence shall be verified by the OO involved. A "certifying OO" shall gather the requisite certificate(s) from all OOs involved in the claim and complete and verify the information in the applicable FAI record claim form(s) or NAC-specified badge claim form(s). At a minimum, the certifying OO shall:
- review the pre-flight declaration.
 - verify the physical evidence of the claim per 4.3.4.
 - evaluate the flight data on the .igc file.
 - confirm that all applicable OO control actions in 4.3 were performed.
 - obtain required certificates listed in 4.4.2 and countersign those that are complete and consistent with the claim.
- 4.4.2 **Certificates required**
- PILOT CERTIFICATE OF REGULATORY COMPLIANCE** For all claims the pilot must certify that the flight was conducted in accordance with the Code, was flown in compliance with all the glider manufacturer's and national operating limitations, and in accordance with national flight regulations (airspace use, night flight, etc.).
For records, this certification is on the IGC Record Forms A, B, and C.
 - OO CERTIFICATE** For all claims, this certificate shall list applicable control actions and, for each one, the date it was performed and the signature and OO number of the OO who performed it. Certificates may originate from more than one OO in a given claim.
 - CORRECTION CERTIFICATE** This certificate shall identify the glider and the pilot when the data entered or stored in an FR/PR is incorrect. The certificate must be signed by an OO.
 - TAKE-OFF** This certificate shall list the time and location of take-off.
 - LANDING** This certificate shall list the time and location of landing. It may be signed by an air traffic controller who witnessed the landing. If no one witnessed the landing, two witnesses or an OO shall certify the precise location of the glider and the time and date of that observation.

- f. CALIBRATION CERTIFICATE Instrument error at intervals throughout the FR or PR range shall be listed on a current calibration certificate that includes the laboratory's logo or name. This certificate shall include:
- FR or PR model and serial number and the range of its pressure transducer.
 - date of calibration
 - calibration table
 - date, name, and signature of calibration laboratory official.

A typical calibration procedure and certificate format is included in SC3C, Section 11.

Chapter 5

GLIDER CLASSES and INTERNATIONAL COMPETITIONS

This chapter defines the class structure and some general rules for FAI World Gliding Championships and other international competitions.

5.0 GENERAL

- a. Detailed rules for World Championships and other 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 other international competitions.
- b. In order to claim a badge or a record achieved during a competition flight, the requirements of the Code must be fulfilled regardless of the regulations of that competition.

5.1 CLASS CONFORMITY

- 5.1.1 **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.
- 5.1.2 **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.
- 5.1.3 **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.
Note: 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.
- 5.1.4 **Mass limits** Competition rules may limit the maximum mass of a glider in any class. Any limit must be stated in the official bid and must be approved by the IGC.
- 5.1.5 **Change of components** Except where allowed in the Championship rules, a glider shall use the same set of wings or wing components, fuselage and tail unit for the duration of the competition.
- 5.1.6 **Airworthiness** A glider must hold a valid Certificate of Airworthiness or Flight Permit that does not exclude competition flight and complies with the conditions of its airworthiness documents.

5.2 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 achieved speed for finishers, or to the distance for non-finishers. 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.

5.3 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.

5.4 WORLD CHAMPIONSHIPS

World Gliding 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.

5.5 COMPETITION CLASSES

5.5.1 **Open Class** No limitations.

5.5.2 20 metre multiplace

- a. **ENTRY** The class consists of gliders having a crew of two persons. The crew must represent the same NAC and have a Sporting Licence issued by that NAC. The winning crew shall jointly hold the title of Champion.
- b. **WINGS** The span must not exceed 20,000 mm.
- c. **BALLAST** Disposable ballast is permitted.
- d. **SCORING** Except in World championships, scoring formulas may include handicap factors. If handicaps are to be used, the gliders must have a handicap factor within the range used for the competition.

5.5.3 **18 metre Class** The only limitation is a maximum span of 18,000 mm.

5.5.4 **15 metre Class** The only limitation is a maximum span of 15,000 mm.

5.5.5 **13.5 metre Class** The only limitation is a maximum span of 13,500 mm.

5.5.6 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. **AIR BRAKES** The glider must be fitted with air brakes that cannot be used to increase performance. Drag parachutes are prohibited.
- c. **WHEEL** 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** Disposable ballast is permitted.

5.5.7 **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 is that it is within the agreed range of handicap factors for the competition.
- b. **BALLAST** Disposable ballast is not permitted.
- c. **SCORING** Championship scoring formulas shall include handicap factors.

5.6 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 that are open to female flight crew only.
- b. **JUNIOR CHAMPIONSHIPS** Championships in one or more of the approved classes that 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.

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