



*Fédération  
Aéronautique  
Internationale*

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# Section 3 – Gliding

**CLASSES D & DM**

**2022 Edition**

valid from 1 Oct 2022

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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 2022 Sporting Code**

1. Text clarification in 2.2.6 regarding flight evidence.
2. “If the glider has no MoP” is a needed addition to 2.4.1 because MoP use may not be observable from the ground by the OO.
3. Per the approved Year-2 proposal at the 2022 Plenary, paragraph 3.1.10 added to cover the potential problem of an insufficient margin between record claims for flights made within 24 hours of each other.
4. Text clarification in 3.3 regarding flight evidence.
5. New 3.3.3a mirrors 2.4.3a that a calibration certificate is required.
6. Text clarification in 4.1b gives the controlling NAC discretion in what jurisdiction a claim is processed.
7. Text clarification in 4.2.3b that prior written approval from their NAC is required for a OO to act for a record flight.
8. Text clarification in 4.3.1 that an FR installed in the instrument panel can be considered “sealed”.

*The most recent amendments to the rules and significant editorial changes are indicated by a vertical line to the right of any paragraph so changed. Simple editorial changes for grammar or increased clarity are not so noted.*

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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
  - 5 FAI By-Laws, .....Chapter 1, .....para 1.2.1
  - 6 FAI Statutes, .....Chapter 2, .....para 2.4.2.2.5
  - 7 FAI By-Laws, .....Chapter 1, .....paras 1.2.2 to 1.2.5
  - 8 FAI Statutes, .....Chapter 5, .....paras 5.1.1, 5.2, 5.2.3 and 5.2.3.3
  - 9 FAI Sporting Code, Gen. Section, .....Chapter 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 Continental gliding competitions. Some competition rules are also in the General Section of the Sporting Code.
- 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 requirements.
- d. Annex D Rules for the world ranking list of pilots 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. *Italic* text in the Code is informational, not regulatory.

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 a proposed change to be drafted 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 <http://www.fai.org/igc-documents> – then click on *Sporting Code – Section 3: Gliding* and on *Current Sporting Code for Gliding* to see the Code and various appendices.

### 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 An Official Observer (OO) is the person authorized by a NAC to control flights undertaken for an FAI badge or record attempt and to control the data gathered to prove the SOARING PERFORMANCE.

#### **GLIDER ID**

1.1.3 The state-assigned glider registration or NAC-assigned contest ID that uniquely identifies a glider in a badge or record claim.

#### **DECLARATION**

1.1.4 The pre-flight recording of pilot name(s), GLIDER ID, and any WAY POINT coordinates required by a given SOARING PERFORMANCE.

#### **GNSS / GPS**

1.1.5 A Global Navigation Satellite System such as the Global Positioning System (GPS) using multiple satellites operating with receivers to record position and time data.

<b>FLIGHT RECORDER</b>	1.1.6	An IGC-approved device to record pressure altitude and GPS position and altitude. The approval level of a given FLIGHT RECORDER (FR) specifies its use for badge and record claims.
<b>POSITION RECORDER</b>	1.1.7	A POSITION RECORDER (PR) is a NAC-approved device to record GPS data for Silver or Gold badge claims only.
<b>MEANS of PROPULSION (MoP) RECORDER</b>	1.1.8	A device that records noise level or other sensor data to indicate the use of a MoP.
	<b>1.2</b>	<b>DEFINITION of FLIGHT TERMS</b>
<b>SOARING PERFORMANCE</b>	1.2.1	The portion of a glider flight from the START POINT to the FINISH POINT.
<b>WAY POINT</b>	1.2.2	A point specified by a set of coordinates. A WAY POINT may be a START POINT, TURN POINT, or FINISH POINT.
<b>LEG</b>	1.2.3	The straight line between two successive WAY POINTS.
<b>COURSE</b>	1.2.4	All the LEGS of a SOARING PERFORMANCE.
<b>TURN POINT</b>	1.2.5	A WAY POINT between two successive LEGS.
<b>OBSERVATION ZONE</b>	1.2.6	The airspace a glider must enter to attain a declared TURN POINT. It is either: <ul style="list-style-type: none"> <li>a. a CYLINDER having a 500m radius and unlimited height, centered on the TURN POINT, or</li> <li>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.</li> </ul>
<b>FIX</b>	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 device. A FIX does not have an OBSERVATION ZONE.
<b>RELEASE POINT</b>	1.2.8	The WAY POINT where the glider releases or ceases using a MoP.
<b>START POINT</b>	1.2.9	The WAY POINT that marks the beginning of a SOARING PERFORMANCE at either: <ul style="list-style-type: none"> <li>a. the RELEASE POINT, or</li> <li>b. declared START coordinates, or</li> <li>c. a FIX selected post-flight.</li> </ul>
<b>FINISH POINT</b>	1.2.10	The WAY POINT that marks the end of a SOARING PERFORMANCE at either: <ul style="list-style-type: none"> <li>a. where the glider comes to rest on landing, or</li> <li>b. declared FINISH coordinates, or</li> <li>c. a FIX selected post-flight, or</li> <li>d. a FIX established by the starting of a MoP.</li> </ul>
<b>CLOSED COURSE</b>	1.2.11	A COURSE requiring the coordinates of the START POINT and FINISH POINT to be identical.
<b>START &amp; FINISH LINES</b>	1.2.12	A 1 kilometre 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.
	<b>1.3</b>	<b>DEFINITION of SOARING MEASUREMENT TERMS</b>
<b>START TIME and ALTITUDE</b>	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: <ul style="list-style-type: none"> <li>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.</li> </ul>

- 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. Given an excess LOSS OF HEIGHT, see 2.4.4 for badge claims and 3.1.5 for record claims.
- GAIN OF HEIGHT**
- 1.3.5 The recorded altitude difference between a high point and a prior low point.
- OZ CORRECTION**
- 1.3.6 For each TURN POINT achieved only using the CYLINDER OBSERVATION ZONE (OZ), the OFFICIAL DISTANCE shall be decreased by 1 kilometre.
- OFFICIAL DISTANCE**
- 1.3.7 The COURSE distance, less any OZ CORRECTION and/or LOSS OF HEIGHT correction. Distances are measured according to the WGS84 ellipsoid.

#### 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 a RELEASE POINT or a declared START POINT to any type of FINISH POINT, via one, two, or three declared TURN POINTS, which may be flown 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 leg distances 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** If a WAY POINT is to be used twice it must be listed twice in the declaration. A TURN POINT can have the same coordinates as the START or FINISH POINT.

#### 1.4.4 Table of badge and record requirements

Soaring performance	SC3	Use	Declaration	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	Yes see 1.1.4	n/a		OK	n/a	n/a	OK		
Absolute Altitude	1.4.2b	Record only		n/a		OK	n/a	n/a	OK		
Duration	1.4.2c	Badge only	see 2.4.1	n/a		OK			OK		
Straight Distance <sup>(1)</sup>	1.4.2d	Badge or Record	Yes see 1.1.4  <i>with coordinates for each declared way point</i>	3	0	OK	No	OK	OK		
Goal Distance	1.4.2e			0	0	No	No	required	No	No	required
3TP Distance	1.4.2f			3	3	OK	No	OK	OK		
O&R Distance <sup>(2)</sup>	1.4.2g			1	1	No	No	required	No	No	required
Triangle (2TP) Dist. <sup>(2)</sup>	1.4.2h			2	2						
Triangle (3TP) Dist. <sup>(2)</sup>				3	3						
Free Distance	1.4.2i	Record only	Yes see 1.1.4  declared way points optional	n/a	0	OK			OK		
Free 3TP Distance	1.4.2j				3	OK			OK		
Free O&R Distance	1.4.2k				1	OK			No	No	required
Free Triangle Distance	1.4.2l				3	OK			No	No	required <sup>(3)</sup>

- (1) The start point and its coordinates must be listed in the declaration unless the release is used.
- (2) All requirements 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 becomes the center of the finish line.

#### NOTES

- n/a – indicates a requirement not applicable to this soaring performance.
- Internet declarations are options for Silver and Gold badge claims only.
- Silver distance requires a finish fix at least 50 km from release and the launch point, and may be done as part of ANY soaring performance.



# 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 achievement standards. 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 soaring performance.
- b. Regardless of the number of flight recorders and/or position recorders carried in the glider, only those selected by the pilot before take-off and inspected (i.e. controlled) by an Official Observer (OO) shall be used for flight claim evidence. All further references to FRs or PRs in Chapters 2 and 4 for badge claims apply to those so controlled.
- c. In order to claim a badge achieved during a competition flight, the requirements of the Code must be fulfilled regardless of the regulations of that competition.
- d. For all badge flights, 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

A given flight may qualify for every soaring performance that meets the defined requirements.

- |       |                     |                                                                                                                                                                                                                                                                                                   |
|-------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.2.1 | <b>Silver Badge</b> | The Silver badge is achieved on completing these soaring performances:                                                                                                                                                                                                                            |
| a.    | SILVER DISTANCE     | A straight distance flight from a start at release to a finish fix located at least 50 km from release and at least 50 km from the fix recorded at the beginning of the take-off roll.<br><br><i>Note: The Silver distance should be flown without guidance from another pilot. See SC3C-2.3.</i> |
| 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 | <b>Gold Badge</b>   | 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 | <b>Diamonds</b>     | There are three Diamond tasks, each achieved by completing one of the soaring performances below:                                                                                                                                                                                                 |
| 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. The triangle geometry is not restricted.                                                                                                                                                |
| b.    | DIAMOND DISTANCE    | A distance flight of at least 500 kilometres as defined in 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 information held in its national register per 2.0a to the FAI at [record@fai.org](mailto:record@fai.org). 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 **Control and allowed use of FRs & PRs** An OO shall provide control (2.0b) by noting the type and serial ID of each FR and PR, and inspect its installation as described in its approval document. This data is to be made available to the OO present during the transfer of data after the landing (4.3.3) and to the Data Analyst (4.3.4). In addition:
- Silver or Gold claims must be recorded either by an FR approved to Levels 1, 2, or 3, or by a PR approved by the “controlling NAC” as in 2.6.
  - Diamond claims require an FR approved by GFAC to Levels 1, 2, or 3.
  - Diploma flights require an FR approved by GFAC to Levels 1 or 2.

### 2.3 DECLARATION REQUIREMENTS

All badge claims recorded by FR or PR require a declaration per 1.1.4 with the exception of the 5-hour duration flight for Silver/Gold flights (4.3.2 refers). For any distance claim other than Straight Distance from release, the declaration shall also include a list of way point coordinates. The declaration must be identical in every FR and/or PR used, with the exception stated in 2.3b.

- An internet declaration, where NAC-approved, is an option for Silver or Gold flights recorded by an NAC-approved PR or an IGC-approved FR, and supersedes any earlier FR or PR recorded declaration. Along with the content specified in 1.1.4, it must include the OO name(s), and the type and serial ID of each FR or PR used. A hard copy of all internet declarations made for a given flight shall be submitted with claim material.
- Any error in the declaration will invalidate a Diamond or Diploma claim. If the data file for a Silver or Gold flight recorded by any FR or PR omits or has the incorrect pilot name or glider ID, an OO correction certificate (4.4.2c) may be submitted with the claim.
- Diamond and Diploma flights require an FR-generated declaration and if multiple FRs are used, the declaration in each FR must be identical for a claim to be valid.

*SC3C-2.6 has general notes on declarations and SC3C-6.4 on the declaration format as it appears in an .igc file. Consult the FR user manual for the method an FR uses to record the declaration date and time.*

### 2.4 FLIGHT EVIDENCE REQUIREMENTS

The OO certifying the claim for NAC action shall follow 4.3.1 to 4.3.5, and 4.4.1.

- For Altitude Gain, Silver/Gold Duration, and Silver/Gold Distance claims, one .igc file from a controlled FR or PR may be selected for analysis, supplemented by the file from another device if substantial recording gaps are found. If both a FR and a PR were used for a flight, the FR files should be used for analysis first.
  - If an internet declaration was used (when allowed by a controlling NAC), a copy shall be attached to the claim.
  - For Diamond Goal, Diamond Distance, and Diploma claims, the .igc files from every FR used shall be submitted.
- 2.4.1 **Time evidence** The data sampling rate in each FR or PR used must be set to at least once per minute. If the glider has no MoP, 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 flight as given in 4.3.2.
- 2.4.2 **Position evidence** Position data may be recorded by an FR or a PR for Silver or Gold badge flights. An FR must be used for Diamond and Diploma flights.
- RELEASE POINT** The release point (or MoP stop) shall be taken from the recorded in-flight data. If a MoP is not being used, 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-10.8b).

- b. **START/FINISH LINE** Where a start line and/or finish line is required, position data from a FR or PR must show that the glider crossed it as required by 1.3.1.
  - 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** The position of a finish fix shall be taken from the GPS data.
- 2.4.3 **Altitude evidence** GPS altitudes use the WGS84 Ellipsoid as the GPS altitude zero datum.
- a. A copy of the calibration certificate of each FR used shall be submitted with the claim. The pressure altitude evidence is to be corrected using the calibration chart data when the precise altitude is critical to the claim (see 4.3.4c).
  - b. The altitude at which a glider crosses a start or finish line is determined by linear interpolation between the altitude at the last fix before crossing and the first fix after crossing.
  - c. If PR barometric data is not available or the FR calibration period has lapsed, GPS height data may be used for Silver and Gold claims, 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). *An example is given in SC3C-3.3.*
- 2.4.4 **Loss of height limits** 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. 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.
- 2.4.5 **Flight continuity** The FR or PR data must show there was no intermediate landing by the glider 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 can also be assessed from a time plot of the GPS height data.
- 2.4.6 **Barometric calibration period** The barometric recording function of a FR, or a PR (if incorporated), shall be calibrated within 5 years prior to the flight or within 2 months after the flight.
- 2.4.7 **MoP evidence** The OO shall consult the approval document for each device recording MoP data and certify the means used to determine that a MoP was not used during the soaring performance.

## 2.5 THE USE OF POSITION RECORDERS

- 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.
- 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 2.5e and 2.5f are met.
- e. 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.
- f. 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 provides examples of the means by which this may be done.*

### 3.0 GENERAL

- a. The pilot must possess a valid FAI Sporting Licence issued by their NAC or the FAI (GS-3.1).
- b. A World or Continental record claim must be examined by the organising NAC to see that it complies with the Sporting Code before forwarding it to the FAI. *Note: National records are controlled by each NAC and can differ from or be additional to World or Continental records.*
- c. The Continental regions defined in GS-2.5 will be used, with the exception that the part of Russia east of the 61 degree 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.
- d. Regardless of the number of FRs on board, only those approved for records and selected by the pilot before take-off and inspected (i.e. controlled) by an OO shall be used for flight claim evidence in Chapter 3 and 4. All further references to FRs in this chapter apply to those so controlled.
- e. In order to claim a record achieved during a competition flight, the requirements of the Code must be fulfilled regardless of the regulations of that competition.
- f. 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** The 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 wing span measurement required per 5.3. FAI Class D glider records are in the following classes:

- a. OPEN (DO) any glider.
- b. 15 METRE (D15) any glider with a wingspan not exceeding 15,000 mm.
- c. 13.5 METRE (D13) any glider with a wingspan not exceeding 13,500 mm.
- d. ULTRALIGHT (DU) any glider with a take-off mass not exceeding 220 kg.  
(A MICROLIFT glider is an ULTRALIGHT with a wing loading not exceeding 18 kg/m<sup>2</sup>. It does not have separate records).

#### 3.1.3 Multi-place gliders

- a. When a multi-place glider is being used, all flight crew must be identified in the 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 or Continental record using a multi-place glider, they may act as a team. Each crew member must hold a Sporting Licence, and the claim will be registered to the named 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 number 13
  - d. Ultralight Class 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 point 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 triangle geometry requirements in 3.1.8.
- 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 A gain of height of at least 5000m over the start altitude.
- 3.1.8 **Triangle geometry** For triangle and free triangle courses shorter than 750 km, no leg may have a length of less than 28% of the course distance. For courses of 750 km or more, the length of each leg shall be 25% to 45% of the course distance.
- 3.1.9 **Simultaneous records** A joint record claim (per the General Section 7.6) may be registered if more than one claimant, having declared the same task with an identical Official Distance (SC3-1.3.7), achieves exactly the same soaring performance. This is only applicable to Goal Distance (SC3-3.1.5a), Out-and-Return Distance (SC3-3.1.5c) and Triangle Distance (SC3-3.1.5g) records.
- 3.1.10 **Same day claims** If more than one valid claim for a particular record arises from flights made within 24 hours of each other, as given by times of landings, the record shall be awarded for the best performance among them, without regard for the minimum marginal difference required by 3.1.5, 3.1.6, or 3.1.7, as applicable.

## 3.2 DECLARATION REQUIREMENTS

Record flights require a declaration recorded in a Level 1 "all flights" FR per 1.1.4, and any error in the declaration will invalidate the claim. A multi-place glider declaration shall include the name of the co-pilot. When multiple FRs are used, the declarations in each must be identical for a claim to be valid.

*Note: SC3C-2.6 has general notes on declarations and 6.4 on the declaration format as it appears in an .igc file. Consult the FR user manual for the method an FR uses to record the declaration date and time.*

### 3.3 FLIGHT EVIDENCE REQUIREMENTS

The OO certifying the claim shall be approved by the NAC per 4.2.3b and shall follow 4.3.1 to 4.3.5, and 4.4.1. The .igc file from all FRs used must be submitted with the claim (see also 3.3.3b for high altitude claims). An OO shall provide control (3.0d) of each FR by noting its type & serial ID, and inspect its installation as described in the approval document for each FR. This data is to be made available to the OO present during the transfer of data after the landing (4.3.3) and to the Data Analyst (4.3.4).

**3.3.1 Position evidence** Position evidence shall be taken from the .igc file.

- a. **RELEASE POINT** The position data shall clearly indicate the release point (or MoP stop). If a MoP is not being used, the pilot should descend or make a steep turn as soon as possible. The release point shall be taken at the start of this turn or descent. See SC3C-10.8b.
- b. **START/FINISH LINE** Where a start line and/or finish line is required, the position data must show that the glider crossed it in the correct direction per 1.3.1 and 1.3.2.
- c. **TURN POINTS ACHIEVED** 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. When a turn point is not required to be declared, a fix is selected post-flight.

**3.3.2 Time evidence** 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. The data sampling rate in each FR must be set to at least once per minute.

**3.3.3 Altitude evidence** GPS altitudes use the WGS84 Ellipsoid for the zero altitude datum.

- a. A copy of the calibration certificate of each FR used shall be submitted with the claim.
- b. Up to 15,000 metres, pressure data recorded by an FR shall be used. Above 15,000 metres, GPS altitude data from an IGC-approved High Altitude Flight Recorder (HAFR) shall be used.

*For more details on HAFRs, see the Technical Specification for IGC-approved Flight Recorders, Annex B (SC3B), and Annex C (SC3C).*

- 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. Start or finish altitude is determined by linear interpolation between the last fix before crossing and the first fix after crossing the start or finish line.

**3.3.4 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 invalidate proof of flight continuity provided the OO and the NAC are convinced that no critical data is missing and the evidence remains indisputable. For multiple FRs use, 4.3.4 applies if data discrepancies exist between the .igc files used for the claim.

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

**3.3.5 Barometric calibration period** For distance and speed claims, the barometric function of each FR used for the claim shall 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. The pressure altitude shall be corrected using the calibration chart data (see 4.3.4c).

**3.3.6 Means of propulsion evidence and MoP recorder procedures** The OO shall certify in Record Form D (see 3.4) the means used to determine that the MoP recorder functioned correctly.

### 3.4 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 at <https://www.fai.org/igc-documents> – then click on *Records* and on *Record Claim Forms*. They are also available in hard copy from the FAI office and NACs. For national records, the NAC may issue its own forms similar to the FAI versions.

*Note: Refer to SC3-1.7 on the accuracy and precision of claimed record values.*

- 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** To be completed by all NACs involved. Form must be included with claim file.

### **3.5 TIME LIMIT on CLAIMS**

Notice of a record claim must be submitted to [record@fai.org](mailto:record@fai.org) by the controlling NAC, the organising NAC, or OO, and the FAI must receive the notice 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 organising NAC shall forward the complete 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-7.8.1 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 SC3C, NAC refers to either body. See SC3C-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, certifying the pilot's achievement and, in the case of a World or Continental record, sending the record claim file 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 and analyse the flight.

Visiting OOs may be appointed (prior to the flight) by the controlling NAC to act on its behalf.

At the controlling NAC's discretion, the completed claim may be submitted to the organising NAC after an OO from the controlling NAC has reviewed the flight data and confirms to the organising NAC that the flight was flown legally.

- c. If a controlling NAC does not exist or is inactive in a country, the organising NAC may control a record or badge flight there. If the organising NAC is not sure of the current FAI status of a country, it shall contact [members@fai.org](mailto:members@fai.org) or <https://www.fai.org/members> for the current list of NACs.

### 4.2 OO REQUIREMENTS

- 4.2.1 **Appointment and jurisdiction** OOs are appointed by their organising NAC and act within its jurisdiction. OOs may also serve within the jurisdiction of a controlling NAC when authorized by the controlling NAC to do so (see 4.1b).

Directors of competitions sanctioned by FAI or a NAC may act as OOs for badge or record flights undertaken during a competition.

- 4.2.2 **Duties** As the representative of the FAI, the OO oversees FAI badge and record attempts, and any other soaring performance a NAC may define within its authority. In case of a violation of duty by an OO, the appointment of the OO shall be withdrawn.

#### 4.2.3 Competence

- a. OOs must be familiar with the Code and the air regulations pertinent to the flight, and have the integrity and competence necessary to control and certify that flight.

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

- b. OOs must have prior written approval by their NAC to act for World or Continental record flights and is to be included in Part 1 of FAI record Form E for these claims. Previous satisfactory experience as an OO for badges or national records should be a prerequisite.
- c. OOs should be familiar with evaluation problems as outlined in SC3C-10.8. An OO shall be familiar with, or have available from the pilot, the GFAC approval documents of any FR used, and/or the controlling NAC approval document for any PR used.

#### 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 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.

*Note: 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

4.3.1 **Pre-flight control actions** If present at takeoff, an OO shall confirm pilot name(s) and the glider type and registration flown. If this is not possible, an OO shall seal each FR (or PR) to the glider. An FR permanently mounted in an instrument panel with cables and pitot/static tubes attached behind the panel and inaccessible to the pilot in flight, can be considered to be sealed to the airframe. In either case, and for each FR or PR, an OO must perform the control actions required and, for motor gliders, verify the means used to detect MoP use. *Ref: FR approval documents and SC3C-7.3a.*

4.3.2. **Independent evidence** Evidence is required that is independent of any FR/PR to confirm the time and location of take-off, pilot name(s), and glider ID. For a Silver/Gold duration flight controlled by the continual attention of an OO, this OO must also witness and certify the times of release and landing (see 4.4.2d certificate).

4.3.3 **Post-flight control actions** For each FR (or PR), an OO shall inspect any seals applied before take-off and perform or supervise data transfer. Claim submission shall be performed by that OO or another qualified person who shall submit:

- The original data on the memory device as soon as possible after landing. This must include the .igc file and the device file in its original format (if different). The claim shall include a copy of the calibration certificate for each .igc file submitted for analysis.
- The appropriate claim form(s), including OO's evidence that any manually recorded times and locations for the flight correspond to the equivalent FR/PR data.

4.3.4 **Data analyst** A person approved by the NAC shall perform data analysis as follows:

- a. The .igc file(s) for the claimed flight(s) must be the one(s) originally transferred from the FR or PR. The .igc file from any recording device that does not have a sufficient approval level for the claim being made shall be disregarded when performing the data analysis. Confirm the security of each file using the appropriate validation program and verify continuity of flight.
- b. Achieved way point fixes shall be determined from the FR or PR evidence. When multiple devices are used and discrepancies exist, 4.3.5 shall apply. Any measurement or calculation inaccuracy related to the flight data is to be interpreted to the maximum disadvantage of the pilot.

*Analysis guidance is given in SC3C-10.*

- c. For badge and distance record claims the pressure altitude shall be corrected for instrument error by applying the calibration data as appropriate. When absolute altitude is to be determined for a record claim, pressure altitudes must also be corrected for non-standard atmospheric pressure. Guidance is given in SC3C 3.5 and 3.6.

#### 4.3.5 File discrepancies between multiple devices

- a. If a minor discrepancy exists in pilot data, a statement shall be attached explaining, for example, how it is known that "J. Jones" and "James L. Jones" refer to the same person.
- b. When a data gap in excess of 1 minute or numerous smaller gaps exist in the .igc file generated by one device, the data from another device shall be used to confirm continuity of flight.
- c. When device accuracy in time, position, or altitude lead to different final results, the result of least benefit to the claim shall be used.
- d. If the data from one FR/PR shows that a way point is missed but the data from another shows proper achievement, the way point is considered to have been reached.
- e. When multiple FRs are used, any stored coordinate differences arising from device design shall be at most +/- 0.001 minutes at each way point.

### 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). Negligent certifications or willful misrepresentations are grounds for disciplinary action by the NAC concerned.

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). 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. At a minimum, the certifying OO shall:

- a. review the pre-flight declaration.
- b. verify the physical evidence of the claim per 4.3.4.
- c. evaluate the flight data on the .igc file.
- d. confirm that all applicable OO control actions in 4.3 were performed.
- e. obtain required certificates listed in 4.4.2 and countersign those that are complete and consistent with the claim.

#### 4.4.2 **Certificates**

- a. **PILOT CERTIFICATE OF REGULATORY COMPLIANCE** The pilot certifies that the flight was conducted in accordance with the Sporting Code, and in compliance with all national and glider manufacturer’s operating limitations and national flight regulations (airspace, night flight, etc.).

*For records, this certificate is on the IGC Record Forms A, B, and C.*

- b. **OO CERTIFICATE** For all claims, this certificate lists the applicable control actions performed and, for each one, the date and the signature and OO number of the OO who performed it. Certificates may originate from more than one OO in a given claim.
- c. **OO CORRECTION CERTIFICATE.** This certificate identifies the glider and the pilot when this data is incorrectly entered or stored in an FR or PR. It may only be used for a Silver or Gold badge claim.
- d. **TAKE-OFF and LANDING TIME CERTIFICATE** This certificate states the time and location of take-off, and for a duration flight having no FR/PR on board, also the landing time.
- e. **CALIBRATION CERTIFICATE** Instrument error at intervals throughout the FR or PR range will 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.
- f. **POSITION RECORDER CERTIFICATE** This certificate shall state that the PR used cannot record estimated fixes on the claimed flight if PR has that recording option. See 2.5e.

# Chapter 5

## GLIDER CLASSES

### 5.1 TIME PERIOD for CHANGES to CLASS DEFINITIONS

The minimum period between the announcement and implementation of a new competition or record 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.

### 5.2 CLASS DEFINITIONS

5.2.1 **Open Class** No limitations.

5.2.2 **20 Metre Multi-seat Class** The only limitations are a maximum span of 20,000 mm and a crew of two persons shall be carried.

5.2.3 **18 Metre Class** The only limitation is a maximum span of 18,000 mm.

5.2.4 **15 Metre Class** The only limitation is a maximum span of 15,000 mm.

5.2.5 **13.5 Metre Class** The only limitation is a maximum span of 13,500 mm.

#### 5.2.6 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.

5.2.7 **Club Class** The glider must appear on an approved list of handicaps.

### 5.3 MEASUREMENT of WING SPAN

Wing span, for the purpose of conformity with competition and record 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 all sections of the trailing edge along the length of the wing are straight.*

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