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including Class DM (motorgliders)

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

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- 1 FAI Statutes Chapter 1, para 1.6
- 2 FAI Sporting Code, General Section Chapter 3, para 3.1.3
- 3 FAI Statutes Chapter 1, para 1.8.1
- 4 FAI Statutes Chapter 2, paras 2.1.1, 2.4.2, 2.5.2 and 2.7.2
- 5 FAI Bylaws Chapter 1, para 1.2.1
- 6 FAI Statutes Chapter 2, para 2.4.2.2.5
- 7 FAI Bylaws Chapter 1, para 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, General Section Chapter 3, para 3.1.7
- 10 FAI Sporting Code, General Section Chapter 1, paras 1.2 and 1.4
- 11 FAI Statutes Chapter 5, para 5.2.3.3.7
- 12 FAI Bylaws Chapter 6, para 6.1.2.1.3

Sporting Code review and amendment process

The review and amendment process is illustrated by the flowchart below. 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.

A 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 Sporting Code is then placed on the FAI web site at <www.fai.org/gliding/sporting_code>.

The most recent amendments are indicated by a vertical line to the right of any paragraph that has been changed, as shown here. The text may also contain editorial changes to improve its clarity. Such changes are not indicated.

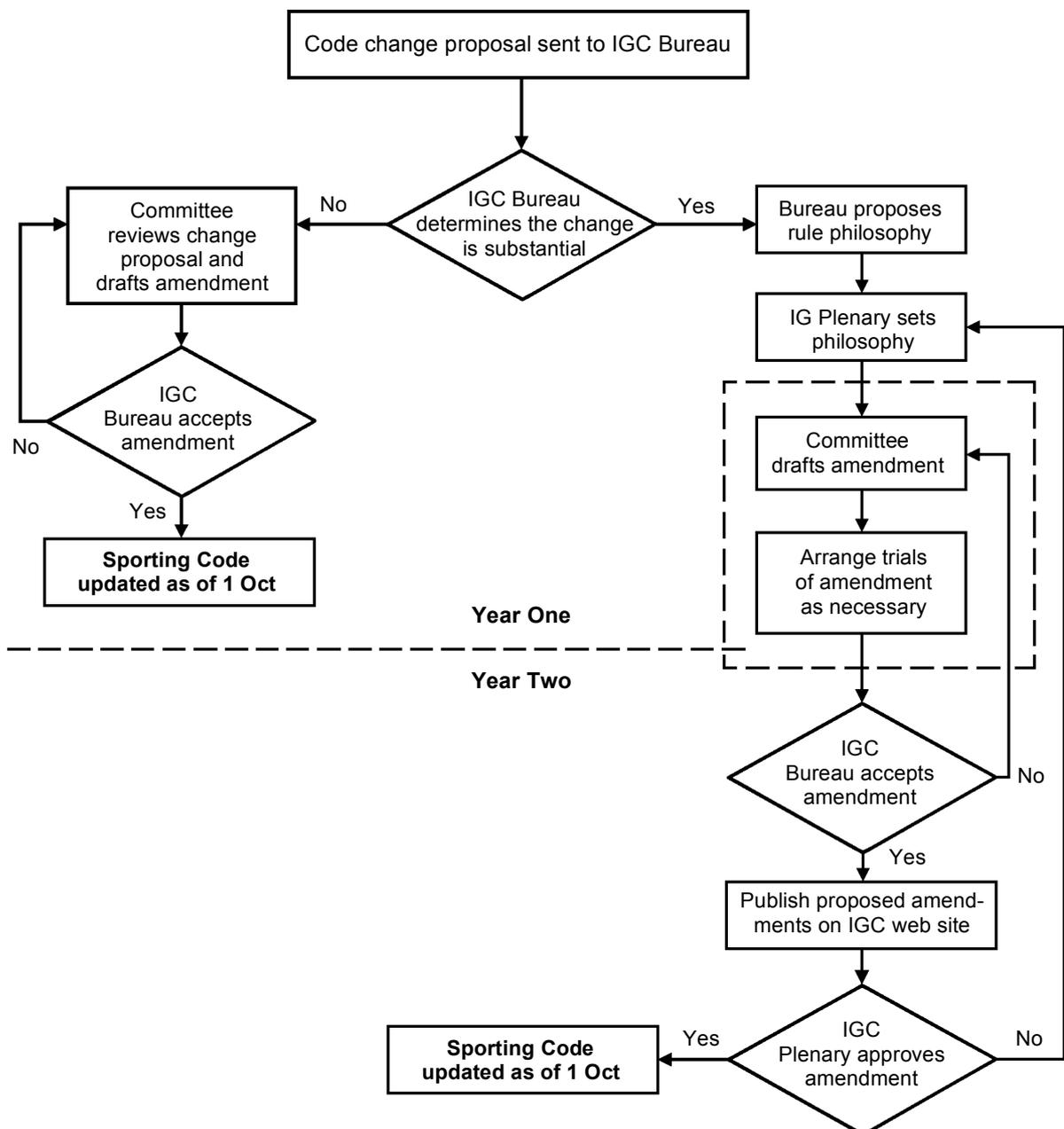


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Chapter 1

GENERAL DEFINITIONS and RULES

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

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

1.0 INTRODUCTION

- 1.0.1 The Sporting Code General Section (GS) contains general definitions and rules applying to all air sports. Section 3 (SC3) gives specific rules that apply to FAI badge and record flights in gliders and motor gliders as defined in GS 2.1 as “Class D” aircraft.
- 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. Any reference to a flight recorder or position recorder applies all recorders carried on a flight.
- 1.0.3 SC3 includes the following annexes:
- Annex A Rules for world and other FAI-sanctioned gliding competitions.
 - Annex B Requirements for equipment used for flight validation.
 - Annex C Non-regulatory guidance, methods and sample calculations to assist Official Observers and pilots in complying with SC3.
 - Annex D Rules for the world ranking list of pilots participating in IGC sanctioned competition.
- 1.0.4 **Related documents** The FAI document, “*Technical Specifications for IGC-Approved GNSS Flight Recorders*” gives information for FR manufacturers. Section 6 covers gliding aerobatic competition, Section 7, hang gliders and paragliders (GS-2.1, class O), and Section 10, microlights (GS-2.1, class R).

1.1 GENERAL DEFINITIONS

- NATIONAL AIRSPORT CONTROL** 1.1.1 The organization having administrative responsibility for a nation’s sport aviation activities. Its duties with respect to gliding are defined in 4.1.
- OFFICIAL OBSERVER** 1.1.2 The person having control of a flight 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 (2.3.1 and 3.2.1 refer).
- GNSS / GPS** 1.1.4 A Global Navigation Satellite System such as the Global Positioning System (GPS) using multiple satellites operating with receivers to create position data.
- FLIGHT RECORDER** 1.1.5 An IGC-approved device to record GPS and other flight data. A given FR model may be approved to record all flights, all Badges, or Silver through Diamond Badges only.
- POSITION RECORDER** 1.1.6 A NAC-approved device to record GPS data for Silver, Gold, and **Diamond Goal** badge claims.

BAROGRAPH	1.1.7	A recording barometer incorporated within a FLIGHT RECORDER and some POSITION RECORDERS to determine MSL altitude from air pressure data.
MEANS of PROPULSION (MoP) RECORDER	1.1.8	A device that records noise level or other data indicating MoP use. When incorporated in an FR, device failure must appear in the .igc file as either MoP use or the numeric value of "000". For POSITION RECORDERS, see 2.6.5.
	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 on the surface of the earth precisely specified by a set of coordinates or by a word description. A WAY POINT may be a START POINT, TURN POINT, or FINISH POINT.
LEG	1.2.3	The straight line between two successive WAY POINTS.
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 a quadrant of airspace having its apex at the TURN POINT, its radius is unlimited, and is oriented symmetrical to and remote from the bisector of the inbound and outbound LEGS.
FIX	1.2.7	A single data point selected from recorded flight data giving latitude, longitude, time, and from a FLIGHT RECORDER, barometric and GPS altitude, or from a POSITION RECORDER that does not record barometric altitude, GPS altitude only. A FIX does not have an OZ.
RELEASE POINT	1.2.8	The point on the ground vertically below 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: <ul style="list-style-type: none"> a. the RELEASE POINT, b. a declared START POINT, c. a FIX selected post-flight as a START POINT, or d. a FIX established by the stopping of a MoP
FINISH POINT	1.2.10	The WAY POINT that marks the end of a SOARING PERFORMANCE at either: <ul style="list-style-type: none"> a. the landing, where the nose of the glider comes to rest without external assistance, b. a declared FINISH POINT, c. a FIX selected post-flight as a FINISH POINT, or d. a FIX established by the starting of a MoP.
CLOSED COURSE	1.2.11	A COURSE requiring the FINISH POINT to be at the same location as the START POINT.
START / FINISH LINE	1.2.12	The 1 km line at ground level, centred on the START / FINISH POINT. For a CLOSED COURSE using a START FIX, the FINISH LINE is centred on the START FIX. In all cases, a START LINE is perpendicular to the first LEG and a FINISH LINE is perpendicular to the last LEG.
	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: <ul style="list-style-type: none"> a. When a declared START POINT is not required for a given performance, START TIME and ALTITUDE may be taken at the RELEASE POINT, at stopping a MoP or, for a free record, at a FIX selected post-flight as the START POINT. b. When a declared START POINT is claimed, START TIME and ALTITUDE shall be taken at the START LINE as the glider crosses in the direction of the first leg.

- 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:
- For a finish at landing, FINISH TIME is the time of landing and FINISH ALTITUDE is the landing site msl elevation.
 - For a finish at a declared FINISH POINT, or the completion of any CLOSED COURSE, FINISH TIME and ALTITUDE shall be taken at the FINISH LINE as the glider crosses in the direction of the last leg.
 - When no declared FINISH POINT is claimed, FINISH TIME and ALTITUDE may be taken at MoP start, 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, except for the Silver distance (2.2.1a).
- GAIN OF HEIGHT**
- 1.3.5 The greatest altitude difference between a recorded high point and a previous low point during a SOARING PERFORMANCE.
- OFFICIAL DISTANCE**
- 1.3.9 The COURSE distance, less any LOSS OF HEIGHT correction as given in 2.4.4b for badges and in 3.4.3 for records. The OFFICIAL DISTANCE shall be used when calculating the distance to be credited and the COURSE speed.

1.4 SOARING PERFORMANCE REQUIREMENTS

1.4.1 General

- Electronic flight data and a DECLARATION are required except where specifically exempt.
- WAY POINTS must be declared and used in the sequence declared, except where specifically not required in these rules.
- When a declared course is required, no more than three TURN POINTS may be declared and no more than four LEGS may be claimed.
- Specific soaring performances place limits to given COURSES as defined in 2.2 for badges and 3.1.6 for records.

1.4.2 Soaring performance types

- GAIN OF HEIGHT** The maximum height attained above a previous low point.
- ABSOLUTE ALTITUDE** The maximum altitude attained after a GAIN OF HEIGHT of at least 5000 metres.
- DURATION** A badge flight at least five hours in length.
- STRAIGHT DISTANCE** A COURSE without TURN POINTS.
- GOAL DISTANCE** A distance COURSE from a declared START POINT to a declared FINISH POINT.
- PILOT OPTION** A distance COURSE via at least one and no more than three declared TURN POINTS used in any order. START and FINISH options are given in 1.2.10 and 1.2.11.
- OUT & RETURN** A CLOSED COURSE having only one declared TURN POINT.
- TRIANGLE** A CLOSED COURSE via two or three declared TURN POINTS. When three TURN POINTS are used, the COURSE distance is the sum of the legs between the TURN POINTS.
- FREE PILOT OPTION** A PILOT OPTION COURSE in which some or all WAY POINTS may be FIXES selected post-flight.
- FREE TRIANGLE** A CLOSED COURSE via two or three TURN POINTS, any of which may be declared or be FIXES.
- FREE OUT & RETURN** A CLOSED COURSE via a FIX or only one declared TURN POINT.

Table of Soaring Performance Requirements

Performance Type	SC3	Declaration requirements* & course elements			Start Options			Finish Options		
		Way Points declared	Max #TP declared / claimed	Legs claimed	Release	GPS Fix	Start Line Crossing	Landing / MoP Start	GPS Fix	Finish Line Crossing
Gain of Height	1.4.2a	Not Applicable			OK	Not Applicable		OK	Not Applicable	
Absolute Altitude	1.4.2b	Not Applicable			OK	Not Applicable		OK	Not Applicable	
Duration	1.4.2c	None Required	Not Applicable		OK	OK	OK	OK	OK	OK
Straight Distance	1.4.2d	Optional	3 / 0	1	OK	OK	OK	OK	OK	OK
Goal Distance	1.4.2e	Start & Finish	3 / 0	1	OK if declared	NO	Required	NO	NO	Required
Pilot Option	1.4.2f	1 to 3 TPs	3 / 3	4	OK	NO	OK	OK	OK	OK
Out & Return	1.4.2g	All Way Points to be claimed	1 / 1	2	OK if declared as start/finish point	NO	Required	NO	NO	Required
Triangle (2 TP)	1.4.2h		2 / 2	3						
Triangle (3 TP)			3 / 3							
Free Pilot Option	1.4.2i	None Required	0 / 3	4	OK	OK	OK	OK	OK	OK
Free Triangle	1.4.2j		0 / 3	3	OK	OK	OK	NO	NO	Required
Free O&R	1.4.2k		0 / 1	2	OK	OK				

* All claims recorded by PR or FR require a pre-flight declaration; see 2.3.2a – 2d for badges, 3.2.1a – 1d for records

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

2.1 BADGE DESIGN (about X2 size):



Silver Badge



Gold Badge



Three Diamonds
(1,2 Diamonds similar)



750+ km Badges
1000 km here,
others similar

2.2 BADGE REQUIREMENTS

- 2.2.1 Silver Badge** The Silver badge is achieved on completing the following soaring performances:
- a. SILVER DISTANCE a distance course with a turn point or any type of finish point at least 50 km from the start point. Allowed distance courses defined in 1.4.2d to 1.4.2h. Any loss of height is calculated using the claimed leg.
The Silver distance should be flown without guidance from another pilot.
 - b. SILVER DURATION a duration flight of at least 5 hours (refer to 2.4.4c on allowed loss of height).
 - c. SILVER HEIGHT a gain of height (1.3.5) of at least 1000 metres.
- 2.2.2 Gold Badge** The Gold badge is achieved on completing the following soaring performances:
- a. GOLD DISTANCE a distance flight of at least 300 kilometres as defined 1.4.2d to 1.4.2h.
 - b. GOLD DURATION a duration flight of at least 5 hours (see 2.4.4c on allowed loss of height).
 - c. GOLD HEIGHT a gain of height (1.3.5) of at least 3000 metres.
- 2.2.3 Diamonds** There are three Diamonds, each of which may be worn on the Silver or Gold badge, and the badges for flights of 750 kilometres or more. A Diamond is achieved by completing one of the soaring performances below:
- a. DIAMOND GOAL a flight of at least 300 kilometres over a triangle (1.4.2h) or an out-and-return (1.4.2g) course.
 - 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 (1.3.5) of at least 5000 metres.

2.2.4 **FAI Diploma flights** Diploma flights begin with a minimum distance of 750 km and increase in 250 km increments. They may use any course defined at 1.4.2d through 1.4.2h. Each badge is awarded once for the incremental distance immediately less than the distance flown.

2.2.5 **FAI register of Diamond and greater badges** On completion of the Diamond badge or a 1000 km or greater badge flight, the NAC shall provide the FAI with the flight data contained in its national register per 2.0b. In turn, the FAI will enter the name of the pilot in an international register, and award the pilot a special Diploma to recognise these flights.

2.3 DECLARATION REQUIREMENTS

2.3.1 **Declaration handling** No pre-flight declaration is required except for a duration flight conducted per 2.4.4a. The last declaration made prior to the flight, written or recorded in a FR, is the valid one.

- a. The declaration may be input to a FR or be written. If a PR is used (see 2.6), a written declaration is required. When written, it shall be on a single sheet of paper or be transmitted either to the OO as an e-mail or input to a NAC-approved website. The declaration time is the time the e-mail is received by the OO or the website. Internet-based declarations are described in Annex C.
- b. Evidence of any written declaration shall be submitted with claim materials. For a declaration made on paper: the original, a scanned copy, or a digital photo of it is acceptable; for a declaration sent by internet, include an electronic copy or printout.
- c. If the pilot or glider information is omitted or incorrect in the FR declaration for a Silver or Gold claim, the OO certificate required by 4.4.1c shall take precedence.

See Annex C-3.4 for general notes on declarations and 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 flight.

For any distance claim other than straight distance:

- e. Way points, when required. If a word description, abbreviation, or code is used to identify a way point, its coordinates must be taken from a published source designated by the NAC.

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 required detail not verified by the OO, the appropriate verification certificate is required as given in 4.4.2.

2.4.1 **Time evidence** GPS time data shall be used, substantiated by independent evidence confirming take-off and landing times and locations. The 5-hour duration task may be flown with no FR or PR; however, it must be 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 may be recorded by an FR or a PR for Silver, Gold or Diamond Goal flights. For the other badges, position data must be recorded by a FR. Position evidence shall be gathered as follows:

- a. **POINT OF RELEASE** Point of release shall be taken from the recorded flight data, or certified by an OO or tow pilot/ground launch operator for a straight distance flight. As soon as possible after release, the pilot should descend or make a steep turn so the GPS data clearly indicates the release point. The release point shall be taken at the start of this descent or turn.

- b. **START/FINISH LINE ACHIEVED** If a start line and/or finish line is used, GPS evidence must show that the glider crossed it. (1.3.1 and 1.3.2 refer)
- c. **TURN POINTS ACHIEVED** GPS evidence must show that a fix was recorded within the OZ or a straight line between consecutive fixes passes through the OZ.
- d. **FINISH** When a finish fix is claimed, its position shall be taken from the GPS data.

2.4.3 **Altitude evidence**

- a. 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.
- b. FR barographic data shall be used, or PR GPS evidence per 2.6.1 provided that the margin given in the 2.6.4 is applied.
- c. For alternate release height evidence for duration flights, see 4.3.3.

2.4.4 **Duration evidence**

- a. If a duration badge flight is done under an OO's continual attention, no GPS barogram data is required. The release certificate shall also include release time and altitude msl, and be signed by the tow pilot or ground launch operator for the flight.
- b. A loss of height (LoH) over 1000m using FR data or 900m using GPS height data from a PR will invalidate the duration performance.

2.4.5 **Loss of height adjustment for distance flights**

- a. For distance flights greater than 100 kilometres where the LoH exceeds 1000m using barographic data or 900m using GPS height data, a height penalty of 100 times the excess LoH shall be subtracted from the length of the course to give the official distance as in 1.3.9.
- b. For distance flights of 100 kilometres or less when LoH exceeds 1% of course distance using barographic data or [1% of course distance minus 100m] for a PR using GPS height data, 100 times that excess shall be subtracted from the length of the course to give the official distance as in 1.3.9.

2.5 **FLIGHT DATA CALCULATIONS, CALIBRATIONS and VERIFICATION**

2.5.1 **Flight continuity** The data must show the glider did not land and a MoP was not used during the soaring performance. An interruption in barographic 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 FR height data.

2.5.2 **Barograph calibration time limits** The recording barometer function of a FR or PR (if incorporated) must be calibrated within 5 years prior to the flight or within two months after the flight.

2.5.3 **FR and PR recording procedures** FR approvals are specified in Annex B Chapter 1. The OO should be familiar with the applicable terms of approval, and:

- a. **BEFORE FLIGHT** The OO shall note the type and serial number of the FR, PR, and any independent MoP recording unit(s) carried on the flight, verify any declaration input, and apply seals if/as required by the applicable approval document(s). 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.
- c. **AFTER FLIGHT** After landing, the OO shall check any seals applied to each FR or PR before the flight. The OO shall perform or supervise the transfer of flight data from each unit.

The OO shall review flight data for completeness, and achieved way point fixes shall be determined from the evidence and specified in the badge claim. The .igc file analysis may to be done for the OO by any knowledgeable person. Analysis guidance is in Annex C.

If the landing was not witnessed, the OO shall complete a landing certificate per 4.4.2f.

2.5.4 MoP evidence

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

2.5.5 Earth model and distance calculations

The WGS84 earth model shall be used for all lat/long data. Distance calculations may use the FAI sphere formula (see Annex C) rather than the geodesic formula unless the exact distance is critical to completing the soaring performance. For Diploma flights of 1000 km or more, the geodesic formula shall be used.

2.6 THE USE OF POSITION RECORDERS

2.6.1 General

- a. Many GPS devices can record the coordinates of their position at intervals. If this data can be downloaded 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, Gold or Diamond Goal flights. Altitude evidence may also be certified subject to the restriction given in 2.6.4 below.
- 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. GFAC will post PR-approval documents that comply with the Sporting Code on the IGC web site.
- c. Guidance on PR operation and the approval process is given in Annex C-6.1 and 6.2, but 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.
- d. Types of flight recorders that have lost their IGC approval may, with NAC approval, be suitable to use as PRs if all other requirements below 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 functions are 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 Downloading and verification

Downloaded data from the PR must be converted as closely as possible to the .igc format. Any download and conversion program should be approved by the NAC and include a validation system that will identify any changes to the .igc file made after the initial download.

2.6.4 Altitude evidence

If the PR used does not record pressure altitude, GPS altitude evidence may be used for a flight 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) and it can be shown that the GPS altitude figures are reliable to be used for measurement purposes. See Annex C-2.4 and 6.2c.

Chapter 3

RECORDS and RECORD PROCEDURES

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

3.0 GENERAL

The following rules covering World and Continental records must be met:

- a. No advance notice for a record attempt is required provided that arrangements have been made for controlling the flight, and the pilot must possess a valid FAI Sporting Licence.
- b. The flight data must be from a flight recorder approved at the “all flights” level.
- 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. National records are controlled by their own NAC and can differ from or be additional to World or Continental records.
- 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 start occurs.
- 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.

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 & motor gliders**

- a. When a multiplace glider is being used, all flight crew must be named on the FR 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. In this case, each crew member must hold a Sporting Licence, and the claim will be registered to the declared pilot-in-command.
- c. Absolute altitude and gain of height records are restricted to the Open record class.

3.1.4 **Record designation** Glider records are designated by code letters starting with the FAI code letter for gliders (D), then adding 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. The General pilot category designated by the letter G.
- f. The Female pilot category designated by the letter F.

Examples: D13F Gliding, 13.5 metre class, Female
 D15G Gliding, 15 metre class, General

3.1.5 Distance records See 1.4.2 for definitions of each course. For distance records, if the loss of height (LoH) between the start and finish is greater than 1000 metres, the achieved distance shall be reduced by **$100(\text{LoH} - 1000\text{m})$** km to give the official distance. The following soaring performances may be flown for distance records:

- a. Straight distance No turn points (TPs)
- b. Distance to a Goal Declared start and finish point with no turn points
- c. Out-and-Return distance Start/finish and only 1 TP declared
- d. Out-and-Return free distance 1 TP selected from a position fix
- e. Pilot Option distance 1 to 3 declared TPs
- f. Pilot Option free distance 1 to 3 TPs selected from position fixes
- g. Triangle distance Start/finish and 2 or 3 TPs declared, see 3.1.9 on geometry
- h. Triangle free distance 2 or 3 TPs selected from position fixes, see 3.1.9 on geometry

3.1.6 Speed records See 1.4.2 for definitions of each course. Way points must be flown in the declared sequence. A claim is allowed only for the incremental distance immediately less than the distance flown. A loss of height between the start and the finish greater than 1000 metres will invalidate the soaring performance. The following soaring performances may be flown for speed records:

- a. Out & Return speed Course lengths are 500 km or multiples of 500 km.
- b. Triangle Speed Course lengths are 100, 300, 500, 750, 1250 km, and all multiples of 500 km. See 3.1.9 on geometry restrictions.

3.1.7 Altitude records Refer to 1.4.2a and 1.4.2b for the definition of these altitude records and 3.5.3 on evidence requirements. The following soaring performances may be flown for altitude records:

- a. Gain of Height
- b. Absolute altitude

3.1.8 Record achievement margins

- a. A new record claim must exceed the current value by 1 km for distance, 1 km/h for speed, and 1% for altitude using pressure data or 150m when 3.5.3 applies).
- b. When a new International record category, class, or type is created, a minimum performance level may be set by the IGC and published on the FAI web site.

3.1.9 Triangle geometry For triangle courses of 750 km or more, the length of each leg shall be 25% to 45% of the official distance. For record 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 a *pre-flight* declaration having the information listed below. The declaration must be input to each FR on board and appear in each .igc file. The last declaration made prior to the flight is the valid one.

- 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. Waypoints, when required. If a word description, abbreviation, or code is used to declare a way point, its coordinates are definitive and must be taken from a published source designated by the NAC.

See Annex C-3.4 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** If more than one FR is used, the data file from each FR must be submitted. They must have identical task data input. If one FR fails, the other becomes the direct replacement. A difference in the declaration between the FRs will invalidate a record claim from that flight.

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

3.4 CALCULATIONS and CALIBRATIONS

Any measurement or calculation inaccuracy related to the flight data is to be interpreted to the maximum disadvantage of the pilot. The minimum data required for each type of soaring performance is given in the record application forms.

- 3.4.1 **Barograph calibration time limits** The barograph function of an FR must be calibrated within five years prior to the flight or within two months after the flight for distance and speed records. Both calibrations are required for altitude and gain of height records, with the less favourable of the two used to make the calculations.

- 3.4.2 **Earth model and distance calculations** The WGS earth model shall be used for all lat/long data and the length of geodesic line(s) joining successive way points shall be used to determine leg distance(s).

- 3.4.3 **Calibration and pressure correction** Where 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 Annex C-2.5 and 11.5.

3.5 FLIGHT EVIDENCE REQUIREMENTS

- 3.5.1 **Time evidence** GPS time 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** All position evidence shall be taken from the FR .igc data file.

- a. **RELEASE POINT** As soon as possible after release, the pilot should descend or make a steep turn so the GPS data clearly indicate the release point. The release point shall be taken at the start of this descent turn.
- b. **TURN POINTS ACHIEVED** Where a turn point is not required to be declared, a fix is selected post-flight. For declared turn points, GPS evidence 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 gain of height record claims having a high point above 15,000 metres, the evidence for the low point shall also come from GPS data.
- e. The altitude at which a glider crosses a start or finish line is found 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

A MoP recorder incorporated within an FR is required for record attempts using a motor glider. The OO shall certify the means used to determine that the MoP recorder functioned correctly by completing Record Form D.

3.5.5 FR recording procedures

FR terms of approval are described in SC3B Chapter 1, the OO shall be familiar with the applicable approval. In order to maintain control of the FR and the recorded data, the OO shall:

- a. BEFORE FLIGHT Verify the installation, set-up, and sealing of all FRs used. 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 4.4.2f 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 flight data from each device. Perform a security check on each resulting data file using the appropriate validation program. Review the flight data for completeness, and if it 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) storing the flight data for each FR. This must include the .igc data 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. DATA ANALYSIS With the exception of a member of the flight crew, analysis of the flight data shall be performed by a person approved by the NAC. The analyst shall ensure the appropriate evidence is present to verify the soaring performance. Achieved way point fixes shall be determined from the FR evidence and specified in the record claim. Analysis guidance is in Annex C.

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 <<http://www.fai.org/gliding>>, 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 RECORD CLAIMS

Notice of a claim for a record must be submitted by the NAC or the OO controlling the attempt, 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-7.8.1 refers).

Chapter 4

OFFICIAL OBSERVERS and CERTIFICATION

4.1 NATIONAL AIRSPORT CONTROL

A 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-1.3 and 1.4 for recommended practices by NACs.

- a. **ORGANISING NAC** The pilot's nationality determines the NAC responsible for issuing them a Sporting Licence. This NAC, known as the organising NAC, also certifies the pilot's achievement and, in the case of an International record, the record claim dossier to the FAI, regardless of where the record attempt took place.
- b. **CONTROLLING NAC** When a record flight both originates and terminates in a country other than that of the organising NAC, the local NAC is known as the controlling NAC, which shall control the flight by authorising the OOs involved. If necessary, and/or if so requested by the organising NAC, a controlling NAC shall also provide control of record flights either originating or terminating in its country.
- c. If a controlling NAC does not exist in a country or is inactive, the organizing NAC may assume the responsibility for the control of a record or badge flight in that country.

The organising NAC should contact the FAI sports department <sports@fai.org> to confirm that an effort has been made to contact any controlling NAC.

4.2 OO REQUIREMENTS

4.2.1 **Appointment and jurisdiction** OOs are appointed by a NAC on behalf of the FAI and IGC. Directors of competitions sanctioned by FAI or a NAC may also act as OOs for badge or record flights undertaken during a contest. OOs are entitled to serve as such within the jurisdiction of the appointing NAC. An OO may also oversee flights made by glider pilots of any nationality if the controlling NAC so permits (4.1b and 4.1c refer).

4.2.2 **Duties** As representatives of FAI and IGC, OOs oversee FAI badge and record attempts, flights made in FAI sanctioned competition, and other soaring performances a NAC may define within its area of 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 have the integrity, skill, and competence necessary to control and certify glider flights. An OO should be briefed or given training appropriate to the duties of an OO prior to being approved by a NAC.

Annex C-1.3 gives recommended practices for NAC administration of OOs.

- b. The OO shall be familiar with the operation and limitations of all evidence-gathering equipment used on a given flight. See also Annex C, App 5 paragraph 1.3.
- c. For World and Continental records, the OO must be approved for this role, in writing, by the controlling NAC. Previous satisfactory experience as an OO for FAI badges or national records should be a requirement. Where more than one OO is involved, an OO with the controlling NAC shall oversee and certify that the work of other OOs is correct.

4.2.4 **Conflict of interest** Ref: http://www.fai.org/documents/otherdocs/code_ethics

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 performance, and the required evidence gathering and evaluation functions performed in relation to a given 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. Certify a written declaration used for a badge flight by adding the date and time and signing it (2.3.2f refers),
 - b. For motor glider flights, verify the means used to detect MoP use (see 2.4.6 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 Form D for a record flight or a NAC equivalent for a badge flight.
- 4.3.3 **Control of a duration flight made under an OO’s continual attention**
The OO must witness both take-off and landing and verify release time and altitude MSL based on a tow release certificate from the tow pilot or ground launch operator for the flight, supplemented if necessary by the flight logs maintained at the take-off and landing site. (2.4.1 refers).
- 4.3.4 **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 is required (4.4.2 refers).

4.4 CLAIM CERTIFICATION

A certificate is a written statement signed (“certified”) 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). Except as provided by 4.4.2g for calibration certificates, 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 **Claim certification** Individual certificates pertaining to portions of flight evidence may be signed by the OO involved who must be satisfied that this evidence complies with all SC3 rules pertaining to the flight. 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, an OO shall:
- a. review the pre-flight declaration.
 - b. evaluate the recorded flight data.
 - c. verify the aircraft flown, each occupant’s name, and the times and locations of take-off and landing, countersigning photocopied flight logs if applicable (4.3.4 refers).
 - d. confirm that all applicable OO control actions in 4.3 were performed.
 - e. obtain required certificates listed below and countersign those that are complete and consistent with the claim.
- 4.4.2 **Certificates required**
- a. **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.*
 - b. **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.

- c. PHYSICAL DATA This certificate shall identify the glider and each person aboard. It must be signed by an OO who witnessed the take-off.
- d. TAKE-OFF This certificate shall list the time and location of take-off and be signed by an OO.
- e. START FROM RELEASE This certificate shall indicate the location of release and be signed by the OO and the tow pilot or ground launch operator.
- f. LANDING This certificate shall list the time and location of landing and be signed by an OO or an air traffic controller who witnessed the landing. When no one has witnessed the landing, this certificate must be signed by an OO or two independent witnesses who arrive soon afterward and certify the precise location of the glider and the time and date of that observation.
- g. 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:
 - type, serial number, and altitude range of barograph
 - date of calibration
 - calibration trace, graph or table
 - date, name, and signature of calibration laboratory official.

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

Chapter 5

GLIDER CLASSES and INTERNATIONAL COMPETITIONS

5.0 GENERAL

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

Detailed rules for World Championships and 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.

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.

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 certificates A glider must hold a valid Certificate of Airworthiness or Permit to Fly that does not exclude competition flight and comply 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 speed or distance achieved: for finishers, to the speed only, for non-finishers, to the distance only. Competitors completing the task shall not be given less than full distance points, and competitors not completing the task shall not be given more than full distance points. Any list of handicaps proposed for a competition must be approved by the IGC.

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 agreed 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 on entry of a glider into a Club Class competition is that it is within the agreed range of handicap factors for the competition.
- b. **BALLAST** 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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