Report from the Light-end Committee: Summary of discussion topics, pros-and-cons analysis, and recommendations for the detailed definitions of the IGC 13.5m racing class in the Year-2 Proposal

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The Committee focused on the details of the structure of the 13.5m racing class that was accepted as a Year-1 proposal in 2009. The topics of discussion included suggestions from the Bureau to evaluate restricting entry to only gliders constructed in accordance with CS22, waiting on future decisions by EASA regarding non-CS22 aircraft, applying a 300-Kg MTOW limit, having the new class replace the current World Class in the Sporting Code for Championships but not for Records, and providing the delegates with a sequence of choices to decide the structure of the Class. This report provides a summary of the discussion topics, pro-and-cons analysis, and recommendations for the Year-2 proposals outlining the detailed structure of the class and the proposed changes to the Sporting Code Section 3 (SC3).

1- Vision for the 13.5m Class

The vision for the 13.5m Class is a class of small, agile, low-cost, easy to rig and transport racers with reasonable performance that will provide the thrill of racing to those who do not have access to the latest models or the latest and expensive designs. The vision is a racing class that will attract and retain within IGC the many gliders and motor gliders at the light-end of Soaring that currently do not have a "racing home." This includes the pure gliders that were contenders for the single-design world class, the gliders and motor gliders of the class DU under IGC SC3, and those "soaring" motor gliders of the class R. A span of 13.5m or less provides a clear and sufficient difference with the other racing classes of IGC SC3, while covering a vast majority of the light-end fleet. Through fair rules and healthy competitions at the international level and at the national, regional and grass-root levels, this new racing class would offer membership growth and would strengthen entry avenues into IGC from the light-end segment of soaring.

2- Eligibility definition

A variety of gliders and motor gliders would be potential participants in the new 13.5m Class. These gliders and motor gliders receive various Certificates or Airworthiness or Permit-to-Fly depending on the regulations of the country in which they fly.

The FAI Sporting Code clearly defines the eligibility requirements for gliders to participate in FAI International Competitions. SC3 paragraph 6.1.6: "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". This definition applies to all gliders in the current IGC racing classes.

This definition is repeated in SC3 Annex A (SC3-A) that provides the rules for World Championship. See for example SC3-A, 3.5.3.c, or SC3-A, 4.1.2.

This definition is also pervasive throughout the entire FAI Sporting Code, for example in Section 10 (SC10) that is very relevant for the purpose of the light-end of soaring because it regulates Class R and its numerous subclasses, in particular the classes RAL1 and RAL2 of motor gliders, some of which are clearly "soaring" motor gliders of interest here: SC10, paragraph 4.13.2: "Each competing aircraft must possess a valid certificate of airworthiness or permit to fly not excluding competition flying. This document must be issued or accepted by the country of origin of the aircraft, or the country entering the aircraft, or the country of the organizers."

If they can display an appropriate airworthiness certificate or permit-to-fly as per FAI SC3 paragraph 6.1.6, gliders and motor gliders of all types CAN TODAY participate in FAI/IGC WGC. It is felt that eligibility of gliders or motor gliders to participate to IGC WGC of the 13.5m Class should be no different than for the other IGC racing classes. No change to the FAI SC3 appears necessary.

The recommendation is that eligibility of a glider or motor glider to enter WGC of the 13.5m Class should be according to the existing section 6.1.6 of SC3, and sections 3.5.3.c and 4.1.2 of SC3-A.

3- CS22

CS22 is not a FAI document. Conformance to CS22 is not a requirement for participation of gliders in FAI IGC events. CS22, or its predecessor JAR22, are purely European documents that have traditionally been used by some European countries as a means to ease the reciprocal licensing of some gliders manufactured in each other's country. Gliders that are not designed to CS22 or JAR22 (in some cases designed to requirements claimed to be better, although very different, than CS22) are flying in many countries over the world, including in Europe. Some are currently holding FAI/IGC Records under the SC3 (e.g., see the set of gliders and microlight motor gliders that currently hold FAI World Records in the class DU of the IGC SC3). Provided that they meet the requirements of the FAI SC3 paragraph 6.1.6, these gliders are also perfectly eligible to enter WGC, as previous entries in "long-wing" WGC attest.

The recommendation for definition of a new IGC racing class is to not introduce new bureaucratic barriers or new references to CS22 or to any other non-FAI documents

4- Waiting on EASA future decisions

Many countries over the World have long-established processes for issuance of airworthiness certificates and/or permits-to-fly, some completely independent of CS22 or JAR22. IGC must be sensitive that trying to impose on all countries of the World the licensing rules and manufacturing regulations of a specific country (or group of countries) has potentially significant economical consequences, essentially favoring some countries (that are using CS22) and their manufacturers, to the detriment of those in the rest of the World. It would seem very unwise to insert into the IGC rules any current or future EASA licensing or manufacturing regulations (such as CS22), which could clearly be interpreted by some as market protectionism measures for current or future EASA interests related to manufacturing of gliders, motor gliders, or microlights. Therefore, it would also seem inappropriate for IGC to wait on future EASA decisions regarding what regulatory and bureaucratic processes they will impose on their designers, manufacturers, and gliders[1].

The recommendation is to uphold the rules, spirit, and philosophy of the FAI Sporting Code regarding licensing of aircrafts (left to each country sovereignty) and to not wait on future EASA decisions.

5- 300-Kg MTOW

High MTOM and high wing-loading are syndromes that have plagued the long-wing IGC classes, where the possibility of jettison-able ballast has driven designs to want to accommodate BOTH low unloaded mass for good climbing abilities in weak weather AND the highest possible ballast-loaded mass for strong weather, thereby increasing MTOW, design complexity (to structurally accommodate the ballast load), and thereby costs.

Without jettison-able ballast, designs would be simpler, with mass and aspect ratio naturally "balanced" on a trade-off between weak weather climbing abilities versus cruise abilities (because only one weight and polar curve can be used), and costs of gliders would be lower.

[1] An ancillary recommendation is for IGC to implement a formal screening process of proposed rule changes to verify that such changes would not conflict with FAI/IGC documents and the seminal rules, spirits, and philosophy embodied in the FAI Sporting Code. It would also be prudent for IGC to establish ubiquitous and unambiguous firewall policies to prevent even the perception of any conflict of interest from IGC elected executives who participate, directly or indirectly, into the proposing and writing of IGC rules and regulations (e.g., executives with functions in both IGC and in specific country-based entities having interest in commercial, regulatory, legal, or economical matters of a specific country or group of countries).

No-ballast rules are already used for Club Class WGC, and are also used in many contests over the World. All existing gliders and motor gliders that are potential participants in the 13.5m Class already meet this no-ballast rule. Thus, to address cost and MTOW concerns, a no-ballast rule would certainly be much more popular among pilots and designers of 13.5m gliders than an arbitrary design limit.

There is no safety reason for limiting the mass of 13.5m gliders, and there is no safety reason for an arbitrary 300-Kg limit.

Another important consideration is that a 300 Kg-limit class already exists in the FAI SC: the RAL1 class that is regulated by CIMA (see FAI SC General Section paragraph 1.4, January 2009 Edition) under Sporting Code Section 10. Note that the FAI SC uses a mass limit in defining Class R, whereas it does not use mass limits to define Class D and DM regulated by IGC under SC3. Thus, a 300-Kg limit brings the potential for future conflicting ruling with a sister organization regarding the 13.5m motor gliders.

Although a 300-Kg limit would allow the single-seat motor gliders of the RAL1 subclass to enter the IGC 13.5m Class, it would reject the two-seaters of the RAL2 subclass that have a 450-Kg MTOW.

A 300-Kg mass limit would not make the 13.5m class racing "fairer." Even with a 300-Kg limit, there would be very large differences in performance among the existing gliders and motor gliders that would potentially form the on-set of a 13.5m class. The performance variations, for example from the 32-33 L/D of the Russia or PW5 up to the 39-40 L/D of the latest models of Silent or Apis, are NOT attributable to MTOW since all these example gliders and motor gliders typically fly at almost the same total mass today. Airfoils, materials, retractable gears, winglets, etc., are generating the large performance differences between these ships at identical MTOW. Therefore, a 300-Kg MTOW limit will not provide a "fair" racing environment, but would lead to a de-facto rejection at the on-set of the class of the otherwise-potential participants that have lower performance.

In summary, a 300-Kg MTOW limit would perhaps attract motor gliders of the RAL1 class, but would reject the two-seaters of the same type, would eliminate all pure gliders that are slightly over this arbitrary limit, would de-facto eliminate at the on-set of the class those pure gliders with lower performance, would not provide anything toward achieving a fair racing environment, and has no underlying safety reason.

The recommendation is to: 1) Not apply a 300-Kg MTOW limit, 2) apply a no-ballast rule to support both lower mass and lower costs, and 3) use the existing rules and regulations of the FAI SC3 and SC3-A to provide the 13.5m Class with a fair and healthy racing environment.

6- Fairness of competitions

FAI and IGC have already defined in the SC3 a now well-demonstrated method for providing greater fairness in racing competitions among gliders with wide performance differences: SC3, paragraph 6.2 states: "The purpose of handicapping shall be to equalize 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."

The handicap rule of SC3 paragraph 6.2 is already used for WGC of the Club Class, and is also used in many national contests all over the World to equalize the performance of competing gliders.

The recommendation is to use a handicap rule for racing events of the 13.5m Class, as per the existing SC3 paragraph 6.2, to provide the class with much fairer and healthier competitions, while also opening racing within IGC to as many gliders and motor gliders of the light-end as possible, including older and newer models, as well as future designs.

7- Viability: Attraction, retention, grass-root support and subclasses

If the recent trend experienced in many countries over the World toward light sport aviation and its reduced bureaucratic burden is any indication, the popularity of a new aviation class will be strongly tied to grass-root activities in individual countries. The migration of the sport aviation membership today is clearly toward less constraints and bureaucratic regulations, and toward more openness and flexibility of participation opportunities. Countries have widely different light-end fleet, some with large numbers of older light-end models, some with rapidly growing fleet of the newer generation of small motor gliders. In establishing a new class, it may be essential for viability to "cast the net as widely as possible" and foster maximum initial participation opportunities, particularly from grass root movements of pilots and gliders of widely differing age, type, and performance.

The concept of monotype subclasses[2] under the "umbrella" of the 13.5m Class would provide each country with a means to cater to their specific fleet and to enhance grass-root participation, in particular from less-financially-fortunate pilots and owners of older models with modest performance. Greater grass-root activities at national levels could lead to greater membership (including attraction and retention of pilots interested in racing but without the financial means to access the latest-and-greatest models), and in turn to potentially greater interest and participation of countries in IGC events at the international level.

With today's widely available computer capabilities, there is no burden involved in running additional scoring for subclasses in national or international racing events.

The recommendation is to include monotype subclasses opportunities under the umbrella 13.5m Class.

8- General comment on future growth

A stated objective of the IGC Light-end Committee is to investigate avenues for IGC to better exploit the light-end segment of soaring toward membership growth. Of particular relevance for the light-end of Soaring is the trend toward the light sport aviation and its reduced bureaucratic burden. Several existing gliders and motor gliders that we are trying to attract to IGC racing with the new 13.5m Class are part of the new light sport aviation trend. It is very doubtful that IGC will attract these gliders to IGC racing events by placing additional regulations and unnecessary bureaucratic barriers on them.

In the future, new gliders and motor gliders will emerge under the light sport aviation movement. Including the concept of monotype subclasses under the umbrella of the 13.5m Class would maintain "single design" racing opportunities in IGC rules. It would also send clear signals to the emerging light sport aviation community that IGC does not limit racing opportunities to only its legacy rules model and that IGC is open to various racing concepts and new grass root activities. Since the light sport aviation is expected to continue to grow, subclasses would also allow future designs to emerge through popularity of use rather than constrained by arbitrary limits and boundaries.

It would seem that an approach that "makes participation easier," "casts the net widely," "allows flexibility," and "welcomes all" would stand the greatest chance as an attraction, retention, and growth strategy for the new 13.5m Class.

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[2] The text of the Year-1 proposal included: "To increase competitive opportunities and participation in countries with large fleet of particular gliders, monotype (single-design) sub-classes may be defined in competitions of this 13.5m class, with additional scoring kept for each sub-class. A sub-class is defined as any set of at least N gliders of the same model and unmodified, officially registered in a particular competition. The suggested minimum number N for a sub-class at a WGC is 10."