Report from the Chairman of the
GNSS Flight Recorder Approval Committee (GFAC)

for the agenda of the 2022 IGC Plenary

5 January 2022

1. **GNSS Flight Recorders**. A total of 61 types of GNSS Flight Recorders (FRs) from 21 different manufacturers are currently IGC-approved. If different models within types are included, the number increases to 71.
References: www.ukiws.uk/GFAC/igc_approved_frs.pdf or through www.fai.org/igc-documents

2. **IGC-approvals**

2.1 March 2021
2.1.1 Updated Approval for the LXNAV LX8000, adding the 8030 and 8040 models with larger screens.
2.1.2 Lines for Filser and Nielsen Kellerman added to table of FR Manufacturers.
2.1 3 Approval documents for LX Navigation DX50, LX20/21 and LX5000 updated.

2.2 April 2021 - initial IGC-approval issued for the Fenix FR from RC Electronics. This was after many emails with RC-E, checking the Fenix IGC file structure, and testing a Fenix at Lasham UK by the GFAC Chairman.

2.3 August 2021 - the main IGC-Approval table updated with references to IGC-approval documents for all FRs.

2.4 December 2021 - an existing FR Manufacturer has applied for IGC-approval for a new type of FR and this is being processed.

3. **FR Specification**. The last amendment to the IGC FR Specification was published in November 2020. Work continues on an amendment to be published in 2022. Items being considered include wording on Fix Intervals, the Environmental Noise Level (ENL) system inside the FR, the IGC-file Validation system, specifying 6 character Serial Numbers (removing limitations that were part of the old DOS filename format), adding Avionix and RC Electronics to the list of FR Manufacturers, and so forth.

4. **IGC Agenda Items**

4.1 Pressure Altitude Calibration. This is required for to ensure accuracy and to demonstrate compliance with altitudes of controlled airspace which are defined with reference to ICAO ISA Pressure Altitudes. It is also required for accuracy of IGC altitude performances below 15,000 metres and for airspace penalties in SC3A competitions. Item 6.3.4 on the 2021 Plenary Agenda was a proposal by Denmark and France for "Removal of the periodical calibration of flight recorders", referring to Pressure Altitude s. This was a Year 1 Proposal, and it is understood that it will be presented again to the 2022 IGC Plenary as a Year 2 Proposal. As in 2021, this is opposed for the reasons below.

4.1.1 Although Pressure Altitude figures from some later models of IGC-approved FRs are more stable compared to earlier models, they can still "drift" with time and can develop faults, even in the most modern designs. Pressure Altitudes must be accurate to satisfy our own IGC requirements and to demonstrate compliance with airspace regulations. It should be noted that many FRs give altitudes to the pilot on a screen as well as recording in the IGC file, and affect in-flight decisions near airspace as well as after-flight analysis.

4.1.2 On IGC rule changes, altering our long-standing rules on pressure altitude calibration would need a major change in several IGC documents. In our SC3 series there are 29 references to Airspace, 60 references to the ICAO International Standard Atmosphere, and 85 references to Pressure Altitude. In SC3 Annex A there are penalties for non-compliance with airspace rules, and accurate IGC file Pressure Altitudes are needed if such penalties are to be applied in the same way to all competitors. For distance and speed claims, accurate Pressure Altitude is required to demonstrate airspace compliance and also to show that the 1000 metre pressure altitude height loss between start and finish is not exceeded (SC3 main volume 3.1.5 and 3.1.6). Time periods for calibrations have been increased over the years and are now 5 years before the flight, or 2 months after the flight if the 5 year period is missed (SC3 main volume para 2.4.6). During the 5 year period, it is not difficult to calibrate a pressure altitude sensor when the glider is on the ground for other CofA work. If we reduce requirements, some current Calibrators may cease activity and not be available when a Calibration is essential.

4.1.3 If there is a complaint about a glider entering prohibited or restricted airspace (as a gliding official I have had to deal with several of these), we need to be able to demonstrate that our rules on pressure altitude are beyond criticism by Civil Aviation Authorities. We have to recognise that such Authorities may carry out an inquiry into an airspace complaint, there may be a formal "Near Miss" report, or, in the worst case, a collision. Over the years, I have seen several Near Miss reports on gliders from pilots of airliners or other powered aircraft, and these need to be countered by accurate Pressure Altitude and position evidence. If our evidence is not accepted by Civil Aviation Authorities as accurate, we are vulnerable to legitimate criticism or even disciplinary action. Finally, if the Denmark/France proposal is accepted, some countries with particularly sensitive airspace may decide to retain the present Calibration period, leading to a divergence of procedures across IGC Nations and difficulties for pilots who wish to fly in different countries.

4.1.4 When I was first an IGC delegate, I remember a proposal to have variable altitude calibration standards across different IGC achievements. This was firmly rejected by Bill Ivans, then IGC President, on the ground that we must have common standards, particularly for IGC certified achievements and airspace, and not deliberately allow lower standards for some IGC activities.

4.1.5 Further comment may be made when the exact wording of the 2022 France/Denmark proposal is published.

Ian W Strachan
Chairman IGC GNSS Flight Recorder Approval Committee (GFAC)

Annex: Current GFAC membership

Annex to GFAC Report for the IGC Plenary Agenda

Current Structure of GFAC

Members - in alphabetical order of family name

Angel Casado PhD (Spain)
Miguel Madinabeitia MSc (Spain)
Peter Purdie BSc (UK)
Ian Strachan FRAeS (UK, Chairman)
Hans Trautenberg PhD (Germany)
John Wharington PhD (Australia)

Technical Advisors

Dickie Feakes, Bicester Aviation Services (UK)
Tim Newport-Peace, Specialist Systems (UK)
