

BGA Airworthiness & Maintenance procedure	AMP-2-5
APPROVAL AND CERTIFICATION BY BGA OF REPLICA, HOMEBUILT AND IMPORTED SAILPLANES LACKING UK ACCREDITATION (NON-PART 21)	

INTRODUCTION

This procedure describes the acceptance of airframes that are not recognised by an existing certification, be they of foreign (non-EU) origin, or locally designed and constructed types. The distinction between the latter and major modifications has to be judged on a case-by case basis. As a major modification under AMP2-3 already requires an BGA assessment, by Technical Committee or CTO, this does not create any additional step in certification process.

BACKGROUND

In UK, ALL sailplanes are administered by, and must conform with, the requirements of UK Civil Airworthiness Authority (CAA). Since the 1930's CAA has effectively delegated the overall oversight of sailplane airworthiness to the BGA. Following the implementation of EASA Part 21 and Part M, that has been limited to non-Part 21 sailplanes. While the detailed remit and processes, and the degree of CAA involvement, has evolved over the years, particularly during the EASA affiliation, the BGA has been careful to secure the continued confidence of the CAA.

Historically, the BGA's privilege extended to the granting of BGA certificates of airworthiness including the acceptance of new types, so called 'initial airworthiness'. This includes BGA certification of new home design and builds, replicas and kits, and substantial modifications, as well as the acceptance of previously unrecognised but certificated foreign types. It also covers clearance of temporary flight trials of experimental modifications.

THE SITUATION WITH EASA RULES

Responsibility for initial airworthiness of airframes manufactured in EU was transferred to EASA in 2007. Now the vast majority (90%) of sailplanes registered in UK are EASA type certificated, and usually designed and manufactured in Europe by manufacturers holding Type Certificate privileges under EASA Part 21. After the UK withdrawal for EU (Brexit), CAA continues to accept that EASA initial airworthiness codes and measures, including the recognition of Type Certification accreditation applied to sailplanes and motor sailplanes in UK. Modifications to 'Part 21' airframes therefore must be addressed to EASA. (Further details at footnote)

There are exceptions to the 'Part 21' process which was designed from the outset to regulate commercial production airframes. The exemption or Basic Regulation 'Annex 1' (formally Annex II) list, delineates a range of near one-off, historic and replica and ultralight airframes not under the

purview of Part 21. Qualification in this list requires individual scrutiny. Of particular interest to our community is the following table (extract) giving the weight below which EASA regulations such as Part 21 are not applied, provided stall speed is below 35kn CAS:

Occupants	Aeroplanes and powered sailplanes	Sailplanes
1 seat	300kg	250kg
2 seat	450kg	400kg

All +15kg if carrying a ballistic recovery system.

Airframes below these weight limits therefore fall under national regulation. The only significant type to create interest to BGA member to have taken up this option is the Alisport Silent 2 Electro. In UK there are no pure sailplanes that use this option, but it might be assumed that any pure sailplane in the ultralight class (such as Silent) would fall to the BGA to certificate.

UK NATIONAL RULES

The EASA Annex 1 list includes 'out of production' types without a 'TC' holder (essentially pre-1960), ex-military, home-builds and kit builds. In UK this encompasses the entire legacy UK production fleet, including Slingsby (inc Skylark and Capstan gliders) and Elliott types that are retained under national certification via the BGA CofA. This situation remains to the present day. In the BGA, some 10% of the register is occupied by Annex 1 and third country (non-EU non-UK) types. Also note that UK CAA continue to support the EASA position that airframes below the limits in the table above a 'de-regulated', that is do not need to comply with any airworthiness code, however airframes capable of autonomous take off still require UK national registration.

BGA CERTIFICATION - PROCESSES

BGA hold approval under UK Civil Aviation Authority for the national certification of pure sailplanes and self-sustainers developed either in UK or external non-EU countries who are NOT engaged in the EU 'Part 21' process. BGA is able to manage modifications to such types, of any maximum all up weight, provided they are NOT capable of self-launch. Depending on their take-off mass, most motor-gliders will fall under the control of the BMAA, LAA or CAA itself. This national certification enable operation only within the UK airspace limits. BGA certification is however a requirement for operation from BGA sites.

STEP 1: Initial application (prelim information):

At an early stage the applicant is advised to seriously consider and assess his abilities to fulfil the requirement for certification, given the documentation available, possibly from parent nation or from original designers or originators (eg. Kit suppliers). If gaps in his knowledge base cannot be filled either personally or via local contacts, the services of a Design Organisation Approval DOA company may subsequently be required, probably at considerable expense. The BGA's role is fundamentally one of audit, and the organisation does not possess the resources to offer design and analysis assistance.

An initial certification application requires sufficient detail to enable proper evaluation of the certification sought.

This could range from full BGA CofA to homebuilt 'Permit to Fly'. This should include:

- Applicant, being Project leader/Designer inc. qualifications/previous design/certification experience.
- Scale of activity (one-off or experimental, home or kit build, full market production)
- Designation of the type for which certification is sought, (or host airframe), with description inc. GA drawing
- Certification sought (Full BGA CofA, Permit to Fly, recognition of unregulated design)
- Current Airworthiness code to which it is designed

Additionally, for imported airframes not yet recognised in UK, specify

- Manufacturer inc. Type Certificates and Company Approvals issued in the parent nation. And brief description of previous aircraft produced and scale of their operation.
- Promoter/Agent, and your anticipated relationship to the parent company.
- List of available supportive documentation (to include applicable design code, flight envelope, design exposition.)

Note that if the airframe is to be produced and marketed in any quantity, on a commercial basis, it is unlikely that BGA certification will be appropriate for the ambitions of a successful commercial enterprise as the UK market alone is unlikely to sustain any viable company. CAA involvement is highly likely.

STEP 2: DOCUMENTATION REQUIRED

Following the agreement with the applicant of the class of accreditation sought, further details will be required in the following areas. These will be identified by the focus contact who will coordinate advice that he may seek from other BGA experts. The information required might be contained in the following, understanding that not these items may be required to satisfy this scrutiny:

- Design exposition based on the nominated design code (eg. CS22, OSTIVAS or other)
- Sourcing of appropriate aeronautical standard materials and fittings.
- Summary Type Record including aerodynamic synthesis, critical load cases and corresponding structural reserve factors in respect of strength, fatigue and flutter.
- Reports on any ground test used to establish the compliance of the airframe.
- Production standards, including materials sourcing, process definition, environmental control of manufacture and Quality Assurance procedures.
- Flight manual information.
- Maintenance guidance and advice.
- Manufacturer's in-service support including technical advice and airworthiness alerts.

The volume and extent of this documentation will naturally vary considerably depending on the scale of the undertaking. For example, the import of an unrecognised type holding an extant airworthiness certificate may only require the submission of existing host nation documents, and engineering assessment as required. At the other end of the scale a full home design and built might require in-depth study of assumptions and calculations, and the formulation of a ground testing programme before flight.

STEP 3: BGA EVALUATION

The BGA will expect to carry out the following in accordance with the nominated design code.

1. A review of the design data (as above).
2. An engineering assessment of the airframe
3. Ground tests, including weight and balance, control system stiffness tests and possibly test, (unless available from the applicant)
4. (On completion of the above) A flight evaluation at a site to be agreed with the applicant.

A priori, these assessments will be made in comparison with EASA CS-22, being the current world recognised standard for sailplane airworthiness. This gives the advantage of understanding the relationship between the candidate airframe and current expected standard. That said, it would not be acceptable to apply such standards to aged airframes, replicas or indeed experimental aircraft, as this would represent retrospective application of standards. The approach will therefore be that having identified shortfalls, the BGA is prepared, on considered evaluation, to grant concession against the modern requirement.

THE ROLE OF BGA AND TECHNICAL COMMITTEE AND THE FLIGHT TRIALS MANAGER

Documentation for each of these phases will be assembled in an application dossier, for the ultimate approval of the BGA Technical Committee, whose decision on the certification class will be final.

The Technical Committee will identify a **TC focal point**, who will typically be a member of the TC, or an experienced flight test engineer and/or professional engineer. The TC focus will make an initial review of existing certification evidence and, where appropriate, design data, and advise the TC on the overall approach. While the Technical Committee involvement is provided part of their role in the BGA, the TC focus will expect to charge expenses to the applicant. It should be understood that the primary, if not sole, responsibility of the TC focal point is to provide guidance to certification and a flying clearance. While the margin between this and customer satisfaction is highly interpretable, and given the TC focal point may cast opinions in this direction, the embodiment of any such suggestions is entirely the responsibility of the applicant.

On successful completion of steps 3/1 through 3/3 above the TC focal point will develop a **Permit to Fly** document appropriate to the defined activity. This will include:

- Identification of the specific airframe under trials.

- Reference to certification documentation and Flight limitations.
- Location, duration (typically 3-6 months) and operation limitations.
- BGA conditions including the identification of a Flight Trials Manager
- Signature by BGA CTO and specific date limit

Issue of the Permit to Fly will require the prior preparation of standard BGA airworthiness documentation including BGA form 267 (Annual Maintenance Inspection). While minor expansions of the Permit might be authorised within its duration, its renewal will be conditional on an interim report via the TC focus.

With the approval of the TC focal point, the applicant will nominate, and the TC focal point agree, a **flight trials manager (FTM)**. This may be the applicant himself, an employee or associate of the applicant, or a trusted colleague. The FTM will be expected to have extensive gliding experience, preferably with a professional aerospace background and preferably qualifications. Any commercial or financial understanding between the applicant and the FTM is not a concern of the BGA.

The roles and responsibilities of the FTM are as follows:

- Manage and be responsible for the safety of the operation, safety equipment and assessment of risks.
- Appoint appropriate pilots, acceptable to the applicant.
- Agree a flight trials programme and progress it, keeping the TC focus informed*.
- Ensure that all documentation is in order and current**.
- Ensure that the activity is properly understood and agreed with those in charge of the field of operation and local infrastructure (eg. CFI, duty instructor).
- Ensure that pilots and others involved (eg. tug pilot or winch driver) are properly briefed security/safety implications, configuration and loading, the purpose of the trial, and the operation and use of any special equipment to be carried.
- Debriefed pilots and create appropriate records and review results consideration of future planning/reporting.
- Keep the TC focus informed of progress and discuss the results and agree any development or issues arising*
- Apply for any adjustments of the terms of the Permit to Fly that may be required.
- Oversee the preparation of, and contribute to the Flight Test and engineering assessment reports.

*A policy of open dialogue in this is very much to be encouraged in all these matters.

** Insurance is mandatory at all BGA sites in UK. Insurance remains the sole responsibility of the applicant. Evidence of insurance may be sought through the TC focus.

CERTIFICATION AWARD

On completion of the flight trials, and in consultation with the TC focal point the flight test manager will prepare a report including engineering assessment and flight test report. The various sections (FT and EA) might well be prepared by different authors. This will be for the approval of the Technical Committee and following review and advice the successful award of appropriate BGA CofA or enduring 'Permit to fly'. The BGA CofA is normally issued against a revised Form 267 (Maintenance Inspection).

Once the certification standard has been ratified by the TC, the BGA CTO will be responsible for communicating this to the applicant and ensuring the proper archiving of the undertaking including the full report. Unless otherwise stipulated the certificated airframe will be released into service under standard BGA maintenance practices including annual inspection.

FOOTNOTE REGARDING EASA AIRFRAMES.

Should a UK individual wish to pursue modification or experimentation of a 'Part 21' airframes, this would remain, in principle, a matter between the applicant and EASA. This cannot be serviced through the BGA. Not only does EASA have limited current rules for modification and experimentation outside the 'Part 21' approved organisations, it is also unlikely to be receptive of applications from outside its member states. Thus, the only realistic national routes to flight in UK would require the airframe to be removed for EASA control and separately re-certificated through the approved channels of the UK CAA. For a temporary experiment there is no guarantee that EASA would be prepared to re-adopt an airframe which has been outside their control. This applies equally to powered aircraft and sailplanes types of recent (post 1960) European origin (full list on EASA website).

HT November 2024