

HOW TO GAIN LAA ACCEPTANCE OF AN ALREADY-ESTABLISHED DESIGN

The generic process for dealing with genuinely new designs is covered in TL 1.07. This Technical Leaflet deals with the issues involved with the acceptance of an already-established design from abroad.

Some designs come from countries where a similar level of regulation exists as in the UK. In that case, the investigation of the type involves checking the work done to gain approval in the country of origin, and determining what further investigation is required to satisfy UK requirements.

Many designs come from aircraft from countries such as the USA where Amateur-built aircraft operate in the 'Experimental Category'. In that case the level of regulation applied is much lower than the UK law demands, allowing them to fly without any validation of the design by the FAA. This creates special problems when considering acceptance into the UK. We do not have an 'Experimental Category' in the UK, the equivalent system for aircraft not eligible for a Certificate of Airworthiness is the 'Permit to Fly'.

In order to satisfy the conditions for a Permit to Fly, an amateur-built aircraft must undergo a detailed design survey and flight tests, either by our CAA (Civil Aviation Authority, equivalent of the FAA) or by the LAA. The LAA, as well as being an association of enthusiasts similar to the EAA, also employ a small team of engineers (headed by the Head of Engineering) forming a CAA-approved company which was set up almost 50 years ago to oversee the airworthiness administration of the amateur-built and certain vintage light aircraft. The aim of the LAA is to keep the costs to our members down, by applying a practical approach to aircraft evaluation and minimising the bureaucracy, without compromising safety. Our members now operate over 2000 aircraft, their Permits to Fly are issued on the LAA's recommendation and annually renewed subject to a satisfactory inspection by one of our 400 plus, strong team of local voluntary inspectors (similar to EAA designees except that our inspectors have to sign for the aircraft's condition).

For a new amateur-built kit, LAA Engineering have to check that the design meets all the fundamental requirements of whatever airworthiness code would apply if it were a fully certified aircraft, i.e. CS-VLA (or JAR-VLA) or CS 23 (or FAR-23). This is done by examining the design itself (by inspection, looking at drawings and build manuals etc), by checking stress analysis submissions and flight test results. A compliance checklist links the various reports.

We also have to check the quality of parts supplied in the kit, the standard of the build manual and verify that the Flight Manual or Pilot's Notes are satisfactory.

For a US designed aircraft in the Experimental Category there is no requirement to design to any code, although these days many kitplane manufacturers do try to comply with the basis of FAR-23, to protect themselves from litigation in the event of an accident. When a design has not been created to comply with the fundamentals of FAR-23, or other recognised code such as CS-VLA, then it will probably not comply in many areas. Some kit aircraft have never been through any kind of stress analysis. Where this is the case it may be difficult or impossible for us to accept the design.

Sometimes we have to carry out an extensive set of modifications to get the design cleared, other designs we cannot accept because there is no design analysis (stress calcs etc) which we can check. Of the many designs available in the USA, only a small fraction have been cleared by the LAA. Sometimes, an engineer in the UK is commissioned by the UK builder

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to analyse an existing design retrospectively, so as to present the LAA with the required stress analysis.

With an older design, we may be able to accept it despite the lack of a stress analysis, if the design is basically conventional and has built up a satisfactory record of thousands of flying hours abroad without incident. The Pietenpol Aircamper was accepted in the UK on this basis, along with many older US designs. We require a minimum of 2500 flying hours for this route to be considered.

The procedure for getting a new type cleared is:

1. Satisfy LAA with design aspects, by presentation of drawings, stress analysis, build manual etc and show that compliance with fundamental aspects of CS-23 / CS-VLA / BCAR Section S is achieved (or if stress analysis not available, or incomplete, service experience hours requirement may be acceptable instead).
2. 'UK prototype' built under the supervision of a LAA inspector, checking standard of kit parts and quality of construction. Occasional visits by LAA design engineer.
3. If all satisfactory, UK prototype cleared for flight test by LAA.
4. Flight tests carried out by a test pilot acceptable to LAA.
5. LAA reviews flight test results, LAA do independent test flight, review Pilots Notes.
6. If all satisfactory, LAA recommends issue of Permit to Fly.
7. Type then becomes LAA accepted and available to other LAA members as a 'series' kit.

Nobody likes to hear criticism of their design, especially when it flies quite satisfactorily under the auspices of their own country's airworthiness system. However by recommending that an aircraft be issued a Permit to Fly, the LAA take on a significant liability (a liability which, in the Experimental Category, is borne mainly by the builder/owner) and we naturally have to apply a rigorous and critical approach.

Our members often under-estimate the difficulty of getting a new design cleared through the LAA. We do have to warn our members when it appears that there may be difficulties in obtaining a Permit to Fly for the kit they are intending to buy. Sometimes a promising new design cannot be accepted because the manufacturer cannot come up with the required paperwork submission. Sometimes a design which looks good on paper is found to suffer bad handling deficiencies when the UK prototype is flight tested. We have several times found that our members have bought kits only to find themselves faced with endless difficulty and disappointment, wishing they had bought an 'already accepted' design. It is important that a builder taking on a 'new type' realises the magnitude of what he is getting involved with.

However, it is part of our brief to get new designs cleared in the UK, so that an ever-expanding range of types is available to LAA members, and we are quite accustomed to guiding new designs through the process, with modifications when required, to achieve this end result.