



## **CONTACTING AN LAA INSPECTOR AND UNDERSTANDING THEIR APPROVAL**

### **CONTACTING AN INSPECTOR**

This Technical Leaflet is provided by LAA Engineering principally for the benefit of members of the Association. All current inspectors are listed on the LAA web site [www.laa.uk.com](http://www.laa.uk.com) in both a postcode-based list and a Google-based map display. The inspector's contact details are shown as well as their scope of inspector approval. You will need to consult the guidance shown here, or on the website, in order to understand the coding terms used in describing the inspector approvals. Alternatively, you may just choose to benefit from the knowledge of fellow LAA'ers by chatting to like-minded builders or enquiring at your local LAA Strut about which inspectors are active in your area.

You will need to select and contact an inspector whose approval covers the type of work and the type of aircraft in question. Note that when building aircraft types of four or more seats, the inspector's approval will also need to specifically cover him for build stages of 4-seat aircraft, indicated by the code 4SW. If you are having difficulty locating a suitable inspector then please contact LAA Engineering for advice.

### **LAA INSPECTION SYSTEM**

The inspection system of the LAA consists of nearly four hundred approved inspectors spread all over the UK. Most of these inspectors are practising professional aircraft engineers or experienced amateur aircraft builders and have been found suitable by the LAA for the issue of an inspector's approval. The LAA could not function were it not for the enthusiasm and help offered by this group, most of whom are members of the Association and all of whom pay an annual registration fee - they deserve our support.

Approval of an inspector does not imply any commercial significance and although these persons have expressed a wish to inspect LAA aircraft they are under no obligation to do so, either for an owner or on behalf of the LAA. The approval awarded to an inspector is graded according to his experience and the scope of approval awarded is described on a card issued to him. The card is identified with each inspector's personal LAA approval number and is renewed annually.

### **INSPECTION OF PROJECTS UNDER CONSTRUCTION**

When embarking on a 'construction project' it is vital that a builder makes contact with a suitable inspector before work begins. 'Suitable' means one who is approved to oversee construction of an aircraft in the material concerned, generally wood, metal or composite material. Many inspectors are approved to sign out construction of an aircraft but not to make the final recommendation to the LAA that the aircraft should be cleared for first flight. In this case a builder will need a 'once off' inspection from an inspector who *is* cleared to make such a recommendation. However, this should not put a builder off using a 'construction only' inspector as their skills and knowledge of construction practises are not in question.

Your inspector will want to visit you, your project and your workshop at the earliest opportunity in order to assess the facilities and the working conditions available - and to have a look at you. If he is going to sign out the construction of your aircraft, most of which will probably take place when he isn't there, he is going to have to trust you, and you will have to earn that trust.

In the case of a kit aircraft he is also going to want to examine the kit to establish it is as it should be. Kit aircraft are not normally produced from sources with the same quality control as Boeing, so nothing should be taken for granted.



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From this point onwards it is up to you to liaise with your inspector and to contact him whenever you reach a stage at which he has said he wishes to be called in. Remember, just because your LAA project book might specify, say, thirty stages, this does not mean thirty visits. As builder, you should be able to manage your build so that more than one stage can be signed off at a visit, but remember also that if the inspector chooses, he may insist on being called in at any interim stage, especially if there is some task in particular that he wishes to oversee. When he does call, keep him warm, fed and watered and offer as much help as he needs, though he may wish to be left alone to concentrate on his task. Hopefully your inspector will be happy to help with technical queries as they arise, and will usually be your first port of call in times of difficulty, but he won't want to be rung up in the dead of night for something that could wait till his next visit. Give him plenty of notice that you are about to reach a stage at which he has said he wishes to visit and take small components to him for inspection rather than expect him to come to you.

When inspecting your project it is his decision that counts, if he likes it, good, but if he says 'do it again' - then do it again you shall. Of course you have a right to swap inspectors at any time though it is strongly advised that it is in your interest to use one inspector throughout as the continuity this provides is most likely to allow a good working relationship to flourish. Remember, assuming he is suitably approved, he is probably going to be the inspector best placed to continue with subsequent Permit renewal inspections etc. in the future.

Some LAA inspectors are busy professionally qualified licensed aircraft engineers and will quite properly charge a commercial rate. Others may be keen experienced builders and in the best LAA tradition will be reluctant to accept anything more than expenses. The bottom line is that the commercial arrangements between a builder/owner and inspector are a matter for themselves, and LAA Engineering cannot get involved.

### UNDERSTANDING THE INSPECTOR'S APPROVAL

By clicking on the inspector's name on our website based inspector lists, a matrix showing the relevant Categories and Groups of the inspector's approval will appear. You will need to refer to the information below to understand the approval description and you may need to contact more than one inspector before identifying the most ideal inspector for your particular circumstance. See also important Notes following this information.

#### Approval Matrix – Categories - Left Hand Column:

##### **Build Stages**

This means build stage inspections (of aircraft in groups defined in adjacent headings) as provided in LAA project Inspection Records issued to LAA registered projects. These stages do not constitute a CAA recognised 'certification', but is a confirmation for LAA purposes that a LAA inspector, acceptable for the task, has inspected the project at that stage and found it to be satisfactory in respect of conformity and quality.

##### **Maintenance and Permit Renewal Recommendations**

This means all maintenance, repairs and replacements (of aircraft in groups defined in adjacent headings, but see also Note 3) and includes aircraft 'rebuilt'. This approval can be for airframes only, engines only, or both. Only inspectors covered for the 'airframe' of the aircraft in question may sign Section 3 of a Permit renewal application form recommending renewal of the Permit to Fly.



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When engine approval is held in this category it means, for certificated engine types (e.g. Continental, Lycoming) all routine maintenance, repairs and replacements up to, but not including, dismantling of crankcase. For non-certificated engines, (e.g. VW, Rotax) it means all routine maintenance, repairs and replacements including complete tear-down and rebuild subject to adequate tools, facilities and specific manufacturer's technical literature being available.

Inspectors should note that approval in this category allows the work involved in installing a major repair or a modification to be signed off from a 'conformity and quality' point of view. It does not permit an inspector to sign for the 'design' itself. The design of all major repairs and modifications must be approved by LAA Engineering.

### **Final Inspection Before First Flight**

This signifies that the inspector is approved to sign the Declaration on the Permit 'first issue' application form (for aircraft in groups defined in adjacent headings) thus constituting a recommendation that the LAA should authorise commencement of test flying. (Approval to make this recommendation automatically includes the installed engine for any airframe covered).

### **Approval Matrix – Groups - Top Line:**

Note that there is inevitably significant overlap between many of the groups described below. For approvals not falling into any of the groups below, see Note 1.

#### **A-A = All Fixed Wing Airframes**

Apart from the exceptions described in Note 2, this means all fixed wing airframes including those constructed from wood, metal and composite (fibre reinforced plastic). All other fixed wing groups are sub-groups of A-A, (except those as Note 2).

#### **AC1 = Fixed Wing Airframes – Simple Composite**

Apart from the exceptions described in Note 2, this means all fixed wing airframes of primarily composite (fibre reinforced plastic) construction which are considered by LAA to be 'simple'. Note 8 provides a list of 'simple' and 'non-simple' composite aircraft types.

#### **AC2 = Fixed Wing Airframes – All Composite**

Apart from the exceptions described in Note 2, this means all fixed wing airframes of primarily composite (fibre reinforced plastic) construction, not limited to just those in AC1.

#### **A-M = Fixed Wing Airframes - Metal**

Apart from the exceptions described in Note 2, this means all fixed wing airframes of primarily metal construction.

#### **A-W = Fixed Wing Airframes - Wood**

Apart from the exceptions described in Note 2, this means all fixed wing airframes of primarily wooden construction.

#### **E = All Engines In Fixed Wing Aircraft**

Apart from the exceptions described in Note 2, this means all engines regardless of type, including two and four stroke, radial, rotary etc. and including engines in group 'A' and



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microlight aircraft and including engines in plans-built, kit and factory-built aircraft. Maintenance and Permit Renewal Recommendations is the only approval category available for engines. The categories Build Stages and Final Inspection Before First Flight are not available for engines. Final Inspection Before First Flight for an engine is automatically included in the airframe approval – see **Final Inspection Before First Flight** above.

### **FBG = Factory-Built Gyroplanes**

This means LAA gyroplanes that have been originally manufactured by an approved company. The only approval category available is Maintenance and Permit Renewal Recommendations, and this automatically includes the installed engine.

### **FBM = Factory-Built Microlights**

This means LAA microlight aircraft that have been originally manufactured by an approved company. The only approval category available is Maintenance and Permit Renewal Recommendations, and this automatically includes the installed engine.

### **G = Gyroplanes & Their Engines**

Apart from the exceptions in Note 2, this means all gyroplanes including their installed engine.

### **K = Kit Aircraft & Their Engines**

Apart from the exceptions in Note 2, this means fixed wing aircraft that have been originally supplied as a kit, and their subsequently installed engine. Applies to kits of wood, metal or simple composite construction (as in AC1 above), but not all composite aircraft (as in AC2 above). Not covered are plans-built aircraft such as Taylor Monoplane and factory-built aircraft such as Piper Cub.

### **M = Microlight Aircraft & Their Engines**

Apart from the exceptions described in Note 2, this means all microlight aircraft and their engines, including both plans-built and kit-built microlight aircraft. It also includes group 'A' versions of aircraft types which are available as microlights, e.g. Rans S6 series.

### **V =Vintage Aircraft & Their Engines**

This means all LAA 'vintage' factory-built aircraft such as Pipers, Austers, Jodels, Jungmann, Taylorcraft, Aeronca etc and includes their engine. Not included is any aircraft built from a kit or plans.

### **4SA = Four Seat Aircraft**

This means all four (or more) seat aircraft, as defined by the maximum number of occupants for which the aircraft is intended to be cleared. Approval is only effective if the inspector's approval also covers the aircraft type in question. Build Stages is the only approval category available for this group as Maintenance and Permit Renewal Recommendations and Final Inspection Before First Flight are covered by the more generic approval groups.



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### NOTES

#### 1. Non-Standard Approvals

Approvals which do not readily fall into any of the above groups, normally those that are engine or aircraft type-specific, will be described using the last column and bottom line of the approval matrix, and should be self explanatory. This space will also be used to complete an approval description in the event that an inspector's matrix is already 'full'.

#### 2. Factory-built Microlights, Factory-built Gyroplanes and 4-Seat Aircraft Build Stages

Approvals to sign for Maintenance and Permit Renewal Recommendations for factory-built microlights and factory-built gyroplanes, and the approval for Build Stages of four (or more) seat aircraft are not included in any of the generic groups. When approval is held for these groups it will be indicated by the use of codes FBG, FBM and 4SA as appropriate. The reasons for this in the case of four seat aircraft is to provide the LAA with an opportunity to underline to an inspector the extra level of responsibility inherent with an aircraft potentially carrying a number of non aviation-aware passengers. Similarly, for factory-built microlights and gyroplanes being able to carry out commercial flight training, specific type experience is normally required prior to an inspector gaining approval in these groups.

#### 3. Scope of Maintenance Approval

Inspectors with a box ticked under any of the groups AC1, AC2, A-M or A-W and correlating with the category Maintenance and Permit Renewal Recommendations may also sign for maintenance on any other LAA aircraft airframe, including gyroplanes (but not including factory-built microlights or factory-built gyroplanes). This is as long as the maintenance does not include any structural repairs or any work to a gyroplane rotor system, and does not include Permit renewal recommendations. This arrangement is in recognition of the fact that its usually irrelevant what material an aircraft is manufactured from if the task in hand is simply to service a system or change a component.

#### 4. Signing for Own Work or Aircraft

There is no restriction on LAA inspectors signing off their own work, as long as the work is within the scope of their approval, except for the following. LAA policy is that whilst any suitably approved inspector, even if the owner, may carry out and sign off 'between-permit' work and sign off worksheets and Section 2 of the Permit renewal application form, only inspectors who do not own or part own the aircraft may sign the Inspector's Declaration (Section 3) of the form, unless the inspector is also a licensed engineer. No inspector is permitted to sign off the build stages of any project that they own, or part own.

#### 5. Approval Extensions and Authorisations

Inspectors are welcome to request an extension to their current scope of approval whenever they feel more experience has been gained or circumstances changed. Inspectors should write to the Chief Inspector with a suitable request, including a resume of experience that is relevant to the extended coverage requested. Amendments will be confirmed (or denied) by letter, with the annual inspector's card showing the change when next issued.



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It is possible, in exceptional circumstances, to authorise an inspector to make a particular once-off certification that is outside the normal scope of their approval. Grant of such a special authorisation would be subject to suitable experience and the availability of tools, manuals and facilities etc and good reason being given. Inspectors should apply to the Chief Inspector on a case by case basis.

### 6. Maintenance of Standards

An inspector approval is issued because it has been shown and it is believed by the LAA that an individual has the necessary experience, qualification and good intention to be awarded such approval. However, inspectors should be aware that non-compliance with applicable procedures or failure to maintain adequate standards can lead to suspension or revocation of their inspector approval.

### 7. Certifications, Confirmations and Recommendations

Handed down by the CAA via LAA Engineering, the fundamental privilege afforded by the approval awarded to a LAA inspector is the ability to sign a PMR (Permit Maintenance Release). This is a legally recognised certification statement that is required after maintenance as a condition of a Permit to Fly. Only a LAA inspector can sign a PMR for a LAA aircraft and an aircraft's Permit would be rendered invalid if this condition was not met. Flight would therefore be illegal. LAA inspectors are also approved by the LAA to sign various in-house certifications, confirmations and recommendations, such as project build stages, weight schedules, duplicate inspections and Permit renewal application forms.

The LAA inspector approval system is necessarily simple and it is inevitable that some inspectors will find that their approval covers them for work of a type for which they have little or no prior experience. The LAA does not expect, for example, that an inspector cleared to inspect 'all engines' will be likely to have a thorough knowledge of each and every type of engine in use in a LAA aircraft. Obviously the onus is upon inspectors to undertake inspection only of those tasks, airframes, engines etc. with which they are either already familiar or are prepared to research to an appropriate extent first. Inspectors are not obliged to 'inspect on demand', and inspectors being asked to oversee a project or inspection about which they feel uncomfortable should decline to be involved and point the LAA member in the direction of a more suitable inspector, or otherwise advise them to contact this office.

### 8. Simple Composite Types

For the purposes of defining the scope of approval group AC1, below is a list of LAA composite aircraft types classified as 'simple' and 'non-simple'. Composite aircraft types not listed below should be assumed to be 'non-simple' and would be covered by approval group AC2. If in doubt, inspectors should contact LAA Engineering for advice.

Simple	Non-simple
<i>CFM Shadow and Streak Shadow</i>	<i>Cozy</i>
<i>Glastar</i>	<i>Europa</i>
<i>Jabiru</i>	<i>Glasair</i>
<i>MCR-01</i>	<i>Lancair</i>
<i>Pelican Club</i>	<i>Rutan</i>
<i>Pulsar and Starlite</i>	
<i>SkyArrow</i>	
<i>Sting</i>	
<i>Twister</i>	



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### **9. Modifications**

All modifications to LAA aircraft must be approved by LAA Engineering, prior to flight. Input and advice from LAA inspectors is welcomed, but no LAA inspector can 'authorise' a modification or subsequent test flight. Changes to propeller type are included in this category.

### **10. Welding**

All welding of significance to airworthiness must be carried out by a CAA approved welder. A list of welders whose details are known to LAA is available from the LAA website - see Technical Leaflet TL 3.04, or contact LAA Engineering office.

### **11. Pilot Maintenance**

A LAA arrangement with the CAA means there is a defined list of work that may be carried out to a LAA aircraft which does not need to be signed out by an approved inspector. This list, reference LAA/PM, is available on our website in Technical Leaflet TL 2.05.

### **12. Duplicate Inspections**

Duplicate inspections are required where engine or flying controls are disturbed. Each should be signed by two separate LAA inspectors or licensed engineers. However, where there is no possibility of such a person being available, an owner/pilot who is a member of the LAA may sign the second part of a duplicate inspection, signing along with his pilot's license number.