

This technical leaflet provides a summary of the responsibilities of owning and operating an LAA Permit to Fly aircraft, and explains how by working in partnership with LAA Engineering, maximum enjoyment and safety can be achieved while staying within the legal framework. Five minutes spent reading this leaflet every year will help you brush up on what you need to do to stay safe and legal, and to keep abreast of any recent developments.

A great deal of more in-depth advice is available from the 'Aircraft and Technical' section of the LAA website at <http://www.lightaircraftassociation.co.uk>.

## **1. Operate the aircraft within the limitations of the Permit to Fly**

The individual mandatory operating limitations in terms of maximum permitted weight, airspeed, aerobatic 'g' limits, day/VFR restriction, etc, for each aircraft are specified on the unique operating limitations document that forms part of the Permit to Fly. With a few exceptions, LAA Permit to Fly aircraft are restricted to private use only, meaning they cannot be hired out or used for flight training on a commercial basis. The exceptions are certain type approved factory built microlights, type approved factory built gyroplanes, and certain factory built single seat aeroplanes, primarily the Tiger Club's Turbulents. Permit to Fly aircraft cannot be used for commercial banner towing, commercial aerial photography etc. but can be used in air displays and competitions, racing etc. Unless flown by a CPL or an ATPL the remuneration paid for participating in an air display can only be a contribution toward the operating cost of the aircraft, however. Special rules apply to the use of Permit Aircraft for glider towing, as described in TL2.26 and to their use by a sole owner (or close relative) for receiving private flying training as described in [TL2.09](#). Technical Leaflets (TLs) can be downloaded from the LAA website via 'Aircraft and Technical' and 'Data Library' or can be supplied by post on request.

## **2. Maintain the Aircraft in an Airworthy Condition**

The Permit to Fly requires that the aircraft must be maintained in an airworthy condition. It is always preferable to keep the aircraft tidy throughout the year rather than allowing a long list of jobs to build up with the intention of tackling them all at Permit renewal time. LAA encourages owners to engage themselves fully with the maintenance of the aircraft, but alternatively this can be carried out on a commercial basis either using paid individuals or a maintenance organisation. Either way, by their very nature, Permit to Fly aircraft are somewhat unique and less well supported in airworthiness terms than their CofA cousins and need a greater degree of owner engagement, technical appreciation and vigilance to achieve an equivalent safety level. LAA encourages and generally achieves an excellent standard these days and it's rare you'll find an LAA aircraft that's less well cared for than other aircraft in the hangar.

As with a car, all aircraft obviously need to be fed with fuel and oil, and every driver knows that windscreen washer, coolant and brake fluid levels need to be checked and topped up from time to time. These days many of us get our cars serviced at the garage and are less familiar than previous generations with the more in-depth maintenance. If you are in this category you will need to seek help from within the LAA community, for undoubtedly, LAA aircraft will deteriorate if not maintained, and will soon let you down if bearings are not lubricated, filters cleaned and points and plugs checked and so on. LAA Engineering encourages a 'zero tolerance' approach to corrosion and to peeling or flaking paint – once the paint film is breached water will soon progress underneath and cause havoc with underlying material whether it be wood, fabric, composite, steel or aluminium alloy.

Manufacturers' recommendations should be followed regarding the routine maintenance schedule to be adhered to, hundred hour checks etc. In the absence of a manufacturer's schedule, or a specific maintenance schedule being stated on the Permit to Fly operating limitations document, it is recommended that the LAA Generic Maintenance Schedule should be used as a guide, tailored to suit the individual aircraft concerned. The Generic Maintenance Schedule as discussed in [TL2.19](#) and downloadable from the 'Operating and maintaining' page of

the LAA website is based around an annual check cycle to coincide with the permit renewal process, with a special more in-depth check at each third year. Alternatively the LAMS (Light Aircraft Maintenance Schedule) CAP 411, downloadable from [www.caa.co.uk](http://www.caa.co.uk) (search for "cap 411") can be used as a guide, including if desired the special LAA alleviations listed in TL 2.25.

Maintenance that can be carried out by the owner/pilot without involving a LAA inspector is limited to those areas defined in [TL2.05](#), available by download from our website. Whether a tyro or an owner who has built his aircraft himself from scratch, or restored a hopeless 'basket case' to perfection, you cannot legally do more than basic maintenance without getting your LAA inspector to inspect and sign for the work. Details of LAA inspectors in your area, and their individual approval categories can be found from the LAA website at 'the 'Find an inspector' page, reached via 'Aircraft and Technical'.

It's best to stick to the same inspector over the years if you can, rather than chopping and changing. That way your inspector can get to know your aircraft and how you operate it, how you get on with looking after it and where you need more guidance and support. As mutual trust develops you can perhaps work up a maintenance plan with your inspector which will help spread the cost, for example by agreeing that in addition to the regular items, this year's annual will be the time to get the propeller refurbished and have the flight instruments re-calibrated but next year he will want to see the fuel tank removed to check the structure underneath and the magnetos overhauled, and maybe the year after will be the end of the road for the fabric on the fuselage that wasn't done when the wings and tail were recovered a few years back. That way, after perhaps five or six years everything on the aircraft will have been refurbished or renewed but no one year will have been disastrously expensive and you won't have lost a season or more's flying in a major overhaul.

Duplicate inspections are required whenever engine or flying controls are disturbed. Each part of such inspections should be signed by a suitably approved LAA inspector. Where a second inspector is not available, an owner/pilot who is also a member of the LAA may carry out the second part of the duplicate inspection, and sign out the second part. When doing so, the owner/pilot must include his pilot's license number with his signature.

Note that if an LAA inspector carries out maintenance on behalf of an owner, he or she can do so but whether remunerated or not, this is not carried out under an LAA inspector's remit. The inspector's remit only covers the inspection and certification role.

Based on past unsatisfactory experiences, owners contracting anyone to do work on their aircraft should do so only when both parties are clear what the extent of the work required is, the standards expected to be achieved and the agreed financial arrangements are set out in writing.

### **3. Maintain the Aircraft Documentation**

All LAA aircraft must have airframe and engine logbooks (and for in-flight variable pitch or constant speed props, propeller logbooks) of a CAA approved format. The LAA shop provides custom LAA logbooks specially worded to suit LAA Permit to Fly aircraft. All flights must be recorded in the logbooks in a timely manner after the event. Details must also be entered of any significant events (eg incidents or accidents) and maintenance (including pilot maintenance), repairs, modifications, replacements etc. All work carried out on the aeroplane other than that in the 'pilot maintenance' category must be inspected by a suitably approved LAA inspector and signed out by him or her before further flight.

The inspector will 'certify' the work by signing a PMR (Permit Maintenance Release). Where control systems are broken down and re-assembled (other than those designed for connection prior to each flight by the pilot), duplicate inspections are required. The PMR can be signed up

on the airframe, engine or propeller logbook itself, as appropriate, or on a separate worksheet. If on a separate worksheet, a logbook entry must also be made summarising the work which is described in the worksheet. Wherever possible, the logbook entry and worksheet should each cross-refer to an appropriate identifying reference, i.e. the mod or repair number, STC number, date and reference number of worksheet, etc.

Maintain an accurate weight and balance schedule either by re-weighing or making a calculated correction when any significant weight changes occur (e.g. after a recover, or after adding a new electrical system, radio, etc). Aircraft should be routinely re-weighed at intervals not exceeding ten years to keep track of natural 'weight growth'. Microlights must be weighed every five years.

#### **4. Ensure that the Aircraft Conforms to an LAA Approved Design Standard**

This means making sure that any modifications to the aircraft are approved by LAA Engineering (not just the local inspector). Where a modification is installed and approval is pending, but not yet granted, the aircraft must not be flown unless test flying permission has been given by LAA Engineering. The approval status of the individual modifications that have been applied for on each LAA aircraft is noted on your aircraft's entry on LAA's electronic database. The main elements of your aircraft's electronic database record are available for the owner to see online via the member's area of our website should you wish to review it at any time. To access the pages all you need to do is to log into the website using your usual login details and then select 'My Aircraft data' from the options on the left-hand side of the page. If you're a current member and our database links you as an owner or co-owner of one or more aircraft, then you'll be able to see their details.

If the aircraft is flown with an unapproved modification, the Permit to Fly is invalidated and the flight would be illegal. Were an accident to occur, and claims made for injury or damages, the owner could find himself or herself held personally liable. Whilst an LAA inspector will have to inspect any modifications and may of course express his opinion about the design of the modification, an LAA inspector cannot clear the design of modifications. Modifications include for example fitting wheel spats, servo operated trim tabs, alternative pitot tubes, extra fuel tanks, etc. The forms and procedures for applying for a mod can be downloaded from the LAA website from the 'modifying and repairing an aircraft' page, normally a MOD 2 form is used to inform LAA HQ of your proposal in general terms, and if LAA consider the modification may be feasible and you are happy to go ahead with satisfying the requirements of the proposed basis for approval, you then apply with the full details and technical submission using a MOD 3 form. Changing the engine or propeller to one of a different type to that shown on the Permit to Fly 'Operating Limitations' sheet are modifications which requires LAA Engineering acceptance using a special mod form (MOD 5 for engines, MOD 4 for props) and usually require a special flight test. Just because a similar aircraft to yours has been cleared with a different kind of engine or prop doesn't mean you can follow suit without first following the engine or prop change procedure – it does mean that the technical procedure will probably be quite straightforward though, see [TL3.02](#). You can find details of previously tested engine/prop combinations on the listing provided in [TL3.12](#). Similarly, to replicate airframe mods that have been done before on another aircraft of the same type you may find it quite simple to obtain either repeat mod or standard mod approval, see [TL3.06](#) and [3.07](#).

#### **5. Keep Informed of all Airworthiness Bulletins and take Appropriate Action**

Airworthiness bulletins may be issued by LAA, CAA, kit manufacturers, engine manufacturers, etc. Compliance with Mandatory Permit Directives (MPDs) is legally mandatory. Compliance with Airworthiness Directives is legally mandatory on ex-certificated aircraft (including their engines, propellers and equipment), if they emanate either from the UK CAA or from the National

Airworthiness Authority of the country where the product was certificated. Such Airworthiness Directives are also required by LAA policy on amateur built aircraft.

Compliance with LAA required 'type' mods and LAA airworthiness information leaflets (AILs) is considered mandatory by LAA for issuing or renewing a Permit to Fly. Compliance with service bulletins is optional unless mandated by an AD or MPD, or LAA, but choosing to ignore a service bulletin or LAA AIL that addresses a safety concern could find an owner having to defend against accusations of negligence if the courts found that the choice not to comply had contributed to or caused an accident.

For many of the most popular LAA types, details of the pertinent airworthiness information can be found in the LAA's Type Acceptance Data Sheets (TADS) which you can download from the LAA website via 'aircraft and technical' and 'data library'. Data pertinent to engines and to propellers, and to many other aircraft types for which TADS have not yet been written are currently included in the LAA inspector's manual 'Notes to LAA Inspectors' (SPARS). Details of any recent safety issues and safety bulletins can be found by regularly monitoring the home page of the LAA website, through the system of website alerts and it is suggested that owners of LAA aircraft check the LAA home page at least once a week for anything pertinent that may have cropped up.

## **6. Make sure that the Aircraft is Adequately Insured.**

Ensure that no less than the minimum legal levels of third party and passenger liability insurance are in place. Adverts and contact details for various insurance brokers can be found in the monthly magazine 'Light Aviation'.

## **7. Report any Defects**

Defects found such as cracks in airframe parts, engine malfunctions etc should be reported to LAA Engineering. We may need to review the design, issue a modification or to pass on details as a warning to other aircraft owners who might suffer the same problem, either individually or collectively to the LAA membership by way of the 'Safety Spot' column in the LAA magazine. In addition, where operational problems may be significant to non-LAA aircraft they may be reported to the CAA via the MOR scheme – the application forms are usually available from airfield operators.

## **8. Report any Accidents**

Reportable accidents, should one occur, must be reported to the AAIB at Farnborough, telephone 01252 512299. A reportable accident is one in which crew are injured or killed, or (more commonly) where any damage is caused to the aircraft, other than purely "engine failure or damage, where damage is restricted to the engine itself and its accessories or cowling, or to propellers, wing tips, aerals, tyres, brakes, fairings, small dents or punctured holes in the aircraft skin". Should a reportable accident occur, other than in exceptional circumstances (e.g. to allow trapped occupants to be extricated) the aircraft should not be moved until permission has been given to do so by AAIB. The AAIB reporting line is constantly manned and in the case of minor reportable accidents, permission to move will normally be given by the officer on duty straight away once he has heard your account of the accident. Once the dust has settled, it's helpful if you could also give LAA Engineering a ring (the next day is fine) to let us know what's happened, we will most likely need to liaise with AAIB and it helps to know the broad circumstances, it also gives us an opportunity to discuss the way forward with securing and the aircraft and, where appropriate, the procedures for undertaking its repair.

Where minor damage occurs, (see [TL3.09](#) for definition of minor), repairs by direct replacement and/or following standard repair schemes as shown in AC43.13 (obtainable from LAA book list, or from [www.faa.gov](http://www.faa.gov), search for "ac43.13") or Civil Aircraft Airworthiness Information and Procedures CAP 562 (downloadable from [www.caa.co.uk](http://www.caa.co.uk), search for "cap 562") can be carried

out under the supervision of the local LAA inspector without contacting LAA Engineering. Refer to [TL3.05](#) for more details. Major repairs must be agreed with LAA Engineering before work begins, and since the Permit to Fly will have been invalidated by the damage, the repaired aircraft may not be flown until cleared for test flight by LAA Engineering. For composite aircraft, refer to [TL3.13](#) 'Repairs to Composite Structures'.

### **9. Seek Permission for any Flights Outside UK Airspace**

It is not normally permissible to base an LAA aircraft outside the UK. Unlike an internationally recognised Certificate of Airworthiness, the LAA Permit brings with it no 'right of flight' outside of UK airspace. Although the Permit to Fly includes an 'Exemption' which allows the aircraft to leave UK airspace, this does not give permission to enter another country's airspace. For the purpose of foreign touring, see [TL2.08](#). If you contact the national aviation authorities of each country whose airspace you want to visit WELL IN ADVANCE, sending a copy of your LAA Permit to Fly, there should be no problem in obtaining a temporary permission although some countries do make charges for these permissions and/or offer them only for a restricted period. The situation with amateur built aircraft is sometimes more straightforward than with vintage types. A mutual arrangement between the UK and France allows free passage, subject to certain conditions as described in [TL2.08](#).

### **10. Ensure the Certificate of Validity Remains Current**

It is your responsibility to observe the period of validity of the Permit to Fly. We do not currently send out 'reminders' when the validity period of your Permit is about to expire. You may wish to keep the Permit to Fly's Certificate of Validity on display in the aircraft's cockpit as a reminder of the date of expiry, this is why we encapsulate it in plastic to help keep it in legible condition.

The expiry of your aircraft's Certificate of Validity can be checked on line either through the CAA's G-INFO website or on your aircraft's entry on LAA's electronic database which is available to LAA aircraft owners online via the member's area of our website. As well as listing some basic information about each aircraft, it also links to the current TADS for that aircraft type (if one exists) and shows the permit (Certificate of Validity) expiry date. Other useful information includes the aircraft status and a progress tracker on any current activity with it at HQ relating to permit initial issue, revalidation, modifications and repairs underway. To access the pages all you need to do is to log into the website using your usual login details and then select 'My Aircraft data' from the options on the left-hand side of the page.

When the time for renewal draws near it is your responsibility to let your LAA inspector know and discuss with him the arrangements for the schedule of work for the Permit renewal, at what stages he wants to inspect the aircraft and so on. He may want to make a preliminary visit to decide on any special areas he feels need investigating over and above the usual points, how the aircraft is going to be jacked to carry out the undercarriage retraction checks, whether the control cables need to be extracted this year to check them for fraying etc. He may prefer to examine the aircraft in depth before the annual flight test if he's bothered about backlash in the aileron control circuit that he feels could cause flutter at V<sub>ne</sub>, for example. Conversely he may want to see it after the flight test if he's worried about deteriorating climb performance when using an engine that's operating on condition well past TBO.

The Permit to Fly renewal application form is obtained from your inspector, not from the LAA Office. See the 'Revalidating a Permit' page of the LAA website, reached via 'Aircraft and Technical' for full details of the process.