YOUR **FREE** GUIDE TO AFFORDABLE FLYING

LAA TODAY

Light Aircraft Association

A comprehensive introduction to

Owning, constructing and flying the many types of amateur-built, vintage & classic and microlight aircraft

A GREAT PLACE TO LEARN
ENGINEERING COURSES

FLY THE DREAM
WHY YOU SHOULD JOIN THE ASSOCIATION

WWW.LAA.UK.COM

BUILDING YOUR OWN AIRCRAFT
ALL THE BASIC QUESTIONS ANSWERED

FLYING FOR FUN
YOUR GUIDE TO PERMIT TO FLY AIRCRAFT

Welcome

By Association Vice President, **Brian Davies**

If you are interested in small aircraft, either as a pilot, owner or an enthusiast, then the Light Aircraft Association (LAA) is here to help you enjoy your passion. The LAA is a not-for-profit members' association that exists for you to enjoy recreational aviation in a low cost and safe way.

We have around 7,800 members who range from highly experienced pilots to amateur aircraft builders to aircraft spotters, or members who simply enjoy reading about light aircraft. We manage to keep our member cost low by working through a team of volunteers and regional clubs, often called Struts, and aircraft type clubs, based around the UK, supported by a small team of paid staff based at Turweston airfield in Buckinghamshire.

Many people are surprised to learn that you can build your own aircraft at home and then fly it not only around the UK, but throughout Europe and beyond.

This is only possible because organisations such as the LAA exist to help you do this in a safe and cost effective way. The majority of our members own aircraft that cost less than a medium-sized family car, and the running costs and insurance can be about the same if you are happy to do your own maintenance. As part of the service that we offer we have a team of more than 350 aircraft inspectors who are more than happy to help you live the dream.

In order to fly safely, there are regulations that require you to hold a pilot's license and for the aircraft to be approved as being fit for flight. The LAA is delegated by the UK Civil Aviation Authority to oversee the construction and maintenance of amateur-built aircraft and also some vintage aircraft, and we also operate a Pilot Coaching scheme so that you can continue to fly and expand your horizons in a safe and affordable manner.

In a world of ever-increasing regulation and restriction, it is vital that our freedom to fly for fun is protected. A key role of the LAA is to champion that freedom and we are an influential voice that is in direct contact with politicians and regulators in the UK and Europe.

Our aim is to work in partnership with the regulators, and we have a long history of success in keeping things as simple and practical as possible so that you can focus on enjoying the world of flying for fun.

Above all we are a member's association made up of like-minded people, so please join us by clicking on our website at www.laa.uk.com or come and chat to one of our team at Aero Expo or the LAA Rally at Sywell in September. Alternatively contact an LAA Strut nearest to you, you can find the contact details on our website.

There are also flying events organised by LAA members almost every weekend in the summer at airfields around the country.

Why not pop along and have a chat? ***LAA***

Contents

The LAA team

President Roger Hopkinson MBE
Vice Presidents Brian Davies and John Brady
Chairman Tim Hardy
CEO Stephen Slater
Chief Engineer Francis Donaldson, B.Tech C.Eng FRAeS
Chief Inspector Ken Craigie
Editor, *Light Aviation* magazine Brian Hope

Come join in the Fun...

LAA CEO **Steve Slater** invites you to join the Association's happy band of ordinary folk – people just like you – who enjoy Flying for Fun!

Hello and welcome! The chances are that if you are reading this, you've picked up *LAA Today* at an aviation event, in a flying club, or have been passed it by a friend. So there's a pretty good chance you, like all of us, are keen on aircraft and flying, and want to know more. So here goes.

The headline Flying for Fun is by no means a new one. It dates back to the 1930s when a gentleman named Jack Parham wrote a book on his exploits in a single-seat, 24-hp Aeronca, which he had bought for the princely sum of £95. He explored the skies above Hampshire, Wiltshire and Dorset for more than a year. He later calculated that it cost him just £28 15/- to fly for the first 100 hours, or £33 10/- with third party insurance!

The culture of affordable flying was continued a decade later when, just after WWII, a group of like-minded enthusiasts formed, in 1946, the Ultra-Light Aircraft Association. It was later renamed the Popular Flying Association and subsequently the Light Aircraft Association. Our members today range from enthusiasts and photographers, to aeroplane restorers and home-builders, aircraft owners and pilots. We're the largest powered-flying organisation in the country and as such, we've been delegated the responsibility by the Civil Aviation Authority for the engineering oversight, inspection and administration of almost 4,500 light aircraft and projects around the UK.

And above all, let's quash any myth that we're all wealthy, Ray-Ban wearing superheroes (though there are one or two out there that hope they might qualify!). The vast majority of LAA's 7,800 members are ordinary people like you and I, from all walks of life, united by a simple passion – for flying.

Let's go fly!

The basics are really very simple; every pilot must hold a licence and every aircraft must be maintained in an airworthy condition, with a valid certificate of airworthiness or LAA Permit to Fly, and it must have at minimum, third-party insurance. So long as these basics are adhered to and you make necessary pre-flight plans, your flying will be safe and legal, and there is generally nothing to stop you getting into your aircraft in much the same way as you get into your car, except that you will enjoy the world from a unique platform.

There are areas of restricted airspace, for example around major airports, and busier airfields may have air traffic control wishing to direct you around their skies. Otherwise much of Britain is blessed with 'uncontrolled airspace', where you can potter over the countryside simply enjoying the view, or

Main Steve Slater has owned several taildraggers over the years, including this sleek Tipsy Trainer.

"Experience the thrill of aerobatics or have a smug feeling as you fly over the traffic jams for a swifter journey to your destination"

experience the thrill of aerobatics or have a smug feeling as you fly over the traffic jams for a swifter journey to your destination.

Getting a pilot's licence

While there are several forms of pilots license available, when it comes to private flying for fun, there are basically three main licenses to choose from:

■ National Private Pilot's Licence (NPPL). The most basic licence which will allow you to fly only in the UK in fair weather and in daylight. It will typically take a minimum of 32 hours of flying instruction to complete and will cost you around £4,500. One advantage of this licence is that you do not require an aircrew medical. So long as you have no outstanding health issues and you are fit enough to hold a driving licence, you can make a 'self-declaration' via the CAA website.

■ European Aviation Safety Agency Light Aircraft Pilot's Licence (EASA LAPL) is effectively a European version of the NPPL, which will allow you to fly within Europe as well as the UK. If you just use it in the UK, you can again make a medical self-declaration. If you wish to use it further afield you will require a medical declaration signed by a GP.

■ The EASA Private Pilot's Licence (PPL) is the most comprehensive licence, recognised around the world, and one which may be your choice if in future you want to add night, instrument flying or instructors' ratings to your CV. It is also the stepping stone to commercial licences too. You will need a Class 2 medical certificate from a CAA-approved doctor for this licence and it takes a minimum of 45 hours to complete at a likely cost of around £7,500.

Choosing a flying school

Unlike learning to drive, you can't simply 'get your mate' to show you how. Training must be carried out by an approved flying instructor and training organisation. When selecting a flying school or flying club, take time to shop around before making your decision, as there may be a number of different organisations and indeed airfields within your reach. Look for a warm welcome, a genuine desire to help you achieve your aims and ideally, a sufficient number of instructors and aircraft to ensure their availability for the duration of your course.

How long will it take?

Given the vagaries of British weather, a typical PPL course will take between six and 12 months, with a mixture of flying training and classroom tuition for ground exams, which cover the areas surrounding the safe operation of an aircraft. Most pilots make the milestone of the coveted 'first solo' after between 10 and 20 flying hours, thereafter the training concentrates on flight-planning, weather appreciation and navigation, leading to cross-country flights and a final flight test. There are also courses available in sunnier climes such as the US where the more predictable weather can allow the course to be completed in a much shorter time, while at the other end of the spectrum, there is no problem in extending training over a year or two, flying as time and funds allow.

What to fly

Light aircraft are every bit as diverse as our members. The term 'light aircraft' encompasses a huge breadth of air-going machinery from microlights and gyroplanes, to classic wood and fabric 'taildraggers' and advanced carbon-composite types, with 'glass cockpit' electronic flight data displays that are the envy of many an airliner. If long-distance touring is your aim, some of these aircraft are, literally, capable of crossing continents.

While the term 'light aircraft' means anything up to 5,700kg max-take-off-weight (mtow), in practice the majority of pilots will have the choice of two basic types of aircraft.

The first group are classified as microlights. These weigh under 450kg mtow and are divided into two categories; weight shift with a triangular hang glider-type wing above a tricycle unit that carries the crew and engine, while three-axis microlights have a conventional fuselage, wings and tail unit.

The second group, Simple Single-Engined Aircraft (SSEA) are generally of conventional layout with a maximum of four seats and a single engine. The majority of these have an mtow of under 2,000kg and are generally heavier, more powerful and better equipped than their microlight equivalents.

Both microlight and SSEA aircraft can either be factory-produced, or in many cases, home-built either from approved drawings or from kits of supplied parts. Among the most successful light aircraft, the Van's range of kit-build aircraft from Portland, Oregon, are today, by some margin, the most popular amateur-built aircraft ever. More than 10,000 examples have been built and it has been estimated that a new RV makes its maiden flight somewhere in the world, every 18 hours!

The following pages will give you plenty of ideas including group ownership to share costs, building your own aircraft or buying a 'classic'. Whatever you fly, the LAA supports 'Flying for Fun', with help, advice – and a unique camaraderie.

Come and join us! *LAA*

PERMIT versus CofA

A large proportion of the light aircraft fleet, particularly those in flying schools, are certificated types, operated in line with international airworthiness standards and maintained in professional workshops.

However, more than 2,600 privately owned aircraft are operated on Permits to Fly, overseen by the LAA. This permit means the aircraft is fit to fly, but it doesn't qualify for an international Certificate of Airworthiness. This is because it is a classic aircraft which no longer has manufacturer support, it's a home-built or kit-built aircraft, or it fits into a category known as a 'light sport' factory-built aircraft. The Permit confirms the aircraft is airworthy with regard to its overall design, construction and maintenance. A big benefit of the scheme for many is that owners can carry out their own maintenance work, overseen and 'signed off' by an LAA Inspector.

There is also the requirement for a thorough airworthiness inspection each year. Another benefit of the LAA Permit system is that making a modification, such as fitting alternative parts, a new radio or instrumentation is easier and much less expensive than for a C of A aircraft.

Above The Piper PA28 has been a popular flying club trainer for many years and operates on a C of A.

Brian Hope looks at the merits, costs and opportunities provided by the ever-increasing and fascinating range of Permit to Fly aircraft

Fly the Dream

There is absolutely no doubt that an LAA Permit to Fly (PtF) aircraft offers one of the most cost-effective options in aircraft ownership. I was convinced of that when I decided to buy a two-seat Permit Jodel over 30 years ago, and a great many hours of international touring and an immense amount of pleasure later, I stand by that statement today.

I decided to write this article to answer some of the obvious, and perhaps not so obvious, questions you may have about aircraft ownership; taken a step at a time, it really does not have to be a complicated thing to do. If the thought of owning your own personal flying machine has ever crossed your mind, read on to discover just how doable it really can be with the LAA.

Airworthiness categories

The Cessna 172s and Piper PA-28s you fly at your local club, or indeed may own yourself, operate on what is known as a Certificate of Airworthiness (C of A). This is, in effect, the regulatory regime that demands that the aircraft was designed, built and is maintained to an internationally recognised standard. The materials it was built with, down to the last nut and bolt, have traceability and a laid-down specification and manufacturing process. The maintenance regime these aircraft have to comply with must be carried out or overseen by EASA-approved engineers. The very nature of these systems makes the design, build and operation of a C of A aircraft relatively complex and expensive.

A simpler approach

Shortly after WWII, a number of enthusiasts approached the Air Registration Board (as the CAA was then) and sought to develop a system for amateurs to build light aircraft that was safe, but not tied to the complex approval requirements to which aircraft manufacturers had to adhere. To their credit, after some initial pushback, the ARB worked with these early pioneers of British amateur aircraft building and agreed a less onerous design approval, build oversight and maintenance system for amateur-built aircraft. As this was a national (UK) arrangement, a C of A was not appropriate, so they were awarded a Permit to Fly as proof of meeting their own, new airworthiness standard.

C of A and Permit differences

The LAA's Engineering department, which approves designs for UK building, uses the same design codes (CS-VLA, FAR 23, etc) as commercial manufacturers, but is allowed a degree of discretion on certain aspects. One of these for example, is that components need only be considered 'fit for purpose' and do not necessarily have to have been specifically built to a parts-traceable and aircraft-approved standard. An automotive alternator can be used, for example, or wheels and brakes that were originally designed for other purposes. Many aircraft parts are made for the amateur-built market by the same companies that supply Certified (C of A) aircraft parts but the simpler paperwork trail means they can be supplied considerably less expensively.

Are Permit aircraft as safe?

Yes, statistics show that Permit aircraft are no more prone to structural accidents than certified aircraft. The vast majority of aircraft

mishaps are pilot-related, whatever class of aircraft is being flown. It's fair to say that many Permit aircraft are not as docile as the typical club trainer, and therefore a higher level of skill is required to fly them. Many, for instance, are taildraggers and most pilots learn on tricycle-undercarriage aircraft these days. Also, many Permit types have light and powerful controls, so a lighter touch is required to fly them effectively. None of this is beyond the wit of the average pilot of course, and a great deal more pleasure can be had from your flying; after all, for pure driving pleasure what would you rather drive, a Mondeo or a Porsche 911?

Are Permit aircraft restricted?

Yes, but not in an onerous way. It was once the case that you could not fly a Permit machine over a built-up area. Notwithstanding that, avoiding large towns and cities in any single-engine aircraft is good airmanship, the 'overflight rule' as it was known, has been rescinded because the CAA accepts that the risk of a Permit aircraft suffering a failure in flight is no greater than that of a C of A aircraft.

One other restriction is that the Permit to Fly is a UK only certification, so these aircraft do not have a given right to fly outside UK airspace. However, reciprocal agreements exist between most European States and amateur-built aircraft have ready access to most of Europe. Huge progress was made in 2016 when ex-factory-built types like Jodels, Luscombes, etc, were also permitted free access to many of those same states. There still remain several EU states where permission needs to be sought to fly a UK Permit aircraft but that is generally not an onerous task. Our nearest neighbours, France and Ireland,

Main If you want a fast, long-distance tourer, then the Van's RV-7 will meet your needs. They are also popular mounts for air racing.

Left Horses for courses – a fine tourer no, but the Pitts fits the bill as a competitive aerobatic competition and display machine.

Below New types are added to the LAA fleet all the time, this is the new Aeroprakt Vixxen, a very practical and well-designed two-seater.

accept both homebuilt and factory-built Permit to Fly aircraft without the need for prior permission.

Night and Instrument flight

For many years, all Permit to Fly aircraft were restricted to daytime VFR flight, that is they could only fly when the weather was reasonable and during the hours of daylight. For many pilots that is perfectly adequate of course, but as LAA aircraft have become more sophisticated, there were those who wanted to be able to fly at night or on instruments when the weather was poor (in IMC). In 2016, a group of dedicated LAA volunteers, together with the LAA engineers, managed to conclude discussions with the Civil Aviation Authorities to allow such flight for aircraft that meet agreed handling requirements and are suitably equipped to be able to do so. This means that a growing number of LAA aircraft can now be cleared to fly in Night/IFR, an added level of practicality for those who require it.

How much will ownership cost?

Well, you first have to decide what type of flying you want to do, and how many hours you think you will fly per year.

Why we fly is a personal thing. Some just want to get airborne for an hour or so, meandering around the local area and landing back refreshed and ready to take on the world once again. Some want to travel hundreds of miles across continents, while yet others will take up one of the competitive aspects of flying such as aerobatics or precision flying. The sort of flying you want to do will obviously have a bearing on the class of aircraft you will need to buy or build. When it comes to considering how many hours you expect to fly, most people overestimate, so be ruthlessly honest. We all have lives to lead, jobs to do and families to consider, which means most of us probably fall into the category of weekend flyers.

In order to get anywhere near to 100 hours a year, you are going to be flying on practically every flyable weekend, because between November and March you can sometimes go weeks without pulling the aeroplane out of the hangar – 60 hours is a reasonable figure, but start getting much below 40 and the financial benefits of sole ownership become less convincing. That's not to say you should not proceed, after all, there are many benefits to owning your own aircraft other than it costing less than hiring, such as being able to use it when you want, being able to take it away for extended periods, pride of ownership, etc., but also consider that a group or partnership can give you most of the benefits of outright ownership but still at a much reduced cost compared to hiring.

So, what next?

So far so good. Once you have settled those issues, what next? By now you are getting to the point of knowing which category of aircraft is going to suit your requirements; let's say, for the sake of example, that you want a two-seater with a reasonable cross-country performance. Unfortunately, from here on in it starts to get rather more tricky because finances get in the way, throwing a possibly unwanted air of reality into the equation.

Try not to decide you must have a certain type of aircraft, unless of course you have no financial constraints. Two-seat tourers range from £12K classics like Aeroncas and Jodels to £100K+ state of the art modern speed machines, and everything in between. The trick is to find the point in the range where you can satisfy your flying appetite while remaining solvent. I suggest you get a piece of paper and work through some examples, but to do that you need to get some fixed and operating costs together.

Hangarage

Of all the issues facing the potential aircraft owner, hangarage will probably give them the biggest headache. It seems that there is a shortage of hangar space almost everywhere in the country and if you want space, you're going to have to get out there and look for it. Personally, I think your best bet is to join the local LAA Strut and get to know some of the local aircraft owners; they will know better than anybody where there might be space available.

Hangarage costs

I know people who are paying nothing at all, and others who are paying over £300 per month at licensed airfields. It's difficult to come up with an accurate figure but from my own experience £100 a month at a farm strip is very reasonable, anything less and you have a good deal. £160 for outside parking, and £220 for hangar space at a licensed airfield is pretty typical. It doesn't take much working out that flying from a strip is likely to save you a considerable sum of money, especially when you add in the landing fees that many airfields charge on top of their hangarage rates.

It's perhaps worth mentioning trailerable aircraft, such as the Europa and Eurofox, which are often touted as 'take home' aircraft that dispense with the need to pay for hangarage. The reality is that the vast majority of these aircraft are kept at airfields just the same as any other. I think it's a question of the hassle factor, dragging an aircraft to and from the airfield and rigging/de-rigging every time you want to fly soon palls. Even keeping the trailer at the airfield as a 'mobile hangar' still leaves the constant rigging and de-rigging chore.

Consider the real practicalities before deciding to take the keep-it-at-home option. Let's settle on an approximate annual hangarage cost of £1,500 at a private strip.

Insurance

It's mandatory that you have third party insurance, the minimum level of which is set by the aircraft's published all up weight, and passenger insurance. However, you can opt to only ever fly your aircraft solo and be exempted from taking passenger cover. The minimum third party limits are:

- up to 500kg: £0.9 million
- 501 to 1,000kg: £1.8 million
- 1,000kg to 1,500kg: £3.5 million

Responsible insurers will advise you that the legal minimum passenger cover requirement is ridiculously low at £100K, and will suggest that you take out what is called a Combined Single Limit (CSL) policy, which covers the mandatory third party requirement and also includes passenger liability up to that total amount. This means that if, for instance, there was no third party claim after an accident, there would be up to the full policy limit to cover a passenger injury claim.

This option is what most owners take, and I would suggest that you think very carefully about trying to save a few bob by buying third party and the minimum passenger cover separately; £100K is completely unrealistic and the bottom line is that if you do have a passenger injury claim and you have insufficient cover, you could end up having to pay the balance of the claim yourself.

The actual aircraft, or the hull as the insurers quaintly call it, does not legally have to be insured. You do therefore have to ask yourself whether you are prepared to accept the possibility of a total loss in the event of an accident; if you are not, then you have two hull insurance options.'Ground Risks' covers your aircraft all the time it's stationary on the ground.

It's intended to cover against damage caused by such things as somebody running into it with another aircraft or vehicle, a hangar collapsing onto it, or if it caught fire or was blown over, etc. Once you start taxying, you are not covered, so if you taxi into the side of the hangar you will not be covered by a ground risk policy.

'Flight Risks' covers all the above ground risks plus taxying and flying, so is in effect the aviation equivalent of fully comprehensive cover for your car or motorbike. Specific costs are difficult to quote as there are so many variables: value of the aircraft, pilot experience, number of pilots insured, type of aircraft, etc. Please take the following examples as a very general guideline only.

- £0.9 million Combined Single Limit (third party and passenger) sub-500kg max all up weight will cost around £400.
- £1.8 million Combined Single Limit 500kg: 1,000kg costs around £450.
- £3.5 million Combined Single Limit 1000kg-1500kg costs around £550.
- Ground risk and Flight risk are based on a percentage of the agreed hull value; that is to say you agree a value with the insurer and that is what you will be paid in the event of a total loss. The percentage varies but is generally around 3 to 3.25%, with a minimum premium of about £350 for flight risks and less for ground risk.
- An excess of up to £1,000 is not uncommon, but this can often be reduced or negated by paying a slightly higher premium.

Unlike motor insurance, there are not a large number of underwriters for light aircraft insurance. Consequently, there is a limit to the amount of shopping around you can do, but it's worth getting two or three quotes, as different companies have their favourite and not-so-favourite aircraft types.

I should also mention the emergence of online insurance in recent years, which can be very competitive. The downsides though are that you need to understand what cover you need, and in the event of a claim you will quite probably not have a broker to resolve the matter on your behalf. All that said, it would not be unreasonable, for purposes of calculation, to agree an insurance premium for our typical two-seat tourer, value around £20K, of £900 per year.

It should be noted however, that insurance rates tend to be cyclic, up for a few years and then down. In the mid to late-2000s they have tended to be in one of their down cycles but the industry is warning that increased premiums are likely as we head towards the end of the decade.

Inspection and Permit fees

Good news here, the Permit fee is at least a known quantity – £150 for an all up weight of up to 450kg, £200 for 451kg – 999kg and £230

"It doesn't take much working out that flying from a strip is likely to save you a considerable sum of money"

Left Operating from a farm strip greatly reduces costs but you will need to be self-reliant and happy to make your own decisions.

Below Modern homebuilts have flown the globe. In 2017 Andy McKee flew the North Atlantic to AirVenture Convention at Oshkosh in his Silence Twister, toured the US and then returned to the UK, 12,500 miles in all.

for 1,000kg and above. So for our typical two-seater it will be £200. Each year you will have to have a Permit renewal inspection, and your LAA inspector will come along to check that your aeroplane is in good fettle. His cost will often be expenses only but he may charge up to about £100, there is no fee set by the LAA for his service. Ideally, at Permit time you should only need an inspection, because you will have kept on top of maintenance and repairs throughout the year.

Fixed annual costs

We're now in a position of having a good idea of the fixed costs: hangarage, insurance, inspection and Permit fees. For our example of a typical fixed-gear, fixed-prop two-seater kept on a farm strip, they will be about £2,600. You may save a bit on hangarage, you may save a bit on insurance if you decide to go third party/passenger only; likewise it will increase if you intend buying and comprehensively insuring a £50K aeroplane.

The figure £2,500 equates to about £50 a week, and is of no consequence to the number of hours the aeroplane flies; that is to say it will remain the same whether the aircraft flies one hour or 150 hours over the year.

Operating cost

This is simply the cost of consumables that the aeroplane uses to fly, the principle constituent being fuel. Many of the new generation of engines, Rotax and Jabiru for example, and some 'conventional' aero engines will happily burn car petrol (mogas) but there is an issue over the use of ethanol in most mogas in the UK. The use of mogas, which contains ethanol, is not permitted in any aircraft other than microlights, so if you choose to use mogas in a light aeroplane you must test it to ensure it is ethanol free. There are simple tests that can be carried out to check for ethanol in mogas.

Until or unless the use of mogas with ethanol in is resolved, you will have to use either 100LL avgas, or UL91, the price of which is currently around £1.70 per litre.

The typical Rotax/Jabiru sips fuel at a pretty meagre rate, about 15 litres an hour, so at today's avgas price, that's around £25 an hour. The small Continentals burn about 20 litres per

Main Whether you fly behind a modern Rotax or, like this, a vintage Renault 4PO3 engine, save an appropriate hourly fee to cover maintenance and long-term rebuild costs.

hour (lph), and a leaned out 150hp Lycoming will return about 25lph. If you're going to be operating a 180hp Lycoming in an aerobatic aircraft, then you can start thinking about fuel consumption in the 40lph range. For our example, we will consider a fuel burn of 20lph of avgas = £34 per hour.

Maintenance costs

If you're reasonably fortunate, then your maintenance fees are going to be fairly minimal. Two or three oil and filter changes and the few odds-and-ends over the course of a year are not going to come to much. However, aircraft maintenance is perhaps akin to what it must have been like living in Docklands during the Blitz – periods of relative tranquillity interspersed with moments of sheer terror – in other words you have to be prepared for the odd unplanned expense. Engines have a finite life and brakes, linkages, tyres, etc., wear out, so preventative maintenance and repairs are an ongoing affair. One year you'll get off lightly, another you may have to fork out a substantial amount of money.

How on Earth do you budget for that? Making an allowance per flying hour, say £10 for a non-complex design, is probably the best way. You then build a fund to pay for the expensive outlays, though you have to keep your fingers crossed that nothing drastic comes up within the first couple of years before the fund builds up to a useful amount.

Naturally, if you are going to be operating an aeroplane with a high-spec engine, glass cockpit and a variable speed prop, plus maybe retractable gear, then you are going to have to be a little more realistic about your maintenance fund; £20 or even £30 an hour may be needed.

This 'hourly rate' system demands the discipline to put that money away on a regular basis, a discipline some of us just do not have. I have always tended towards the crisis management method; when something expensive happens, I rely on finding the money from somewhere – I have to say it hasn't failed me yet!

The truth is that unless you have capital reserves, you may get caught short once in a while but that is a small price to pay for the enjoyment and freedom of owning your own aeroplane.

Cost conclusions

So, we now have a fair idea about what it will cost to own a typical two-seat aircraft based on a private strip – £2,500 fixed costs, about £10 an hour for future repairs and replacements, and £34 per hour for fuel.

Therefore, cost per hour if you fly 50 hours per annum is: 2,500/50 (fixed costs) + 10 (maintenance fund) + £34 (fuel) = £94 per hour. For 75 hours a year it is 2,500/75+10+34 = £77. And for 100 hours a year 2500/100+10+£34 = £71. If these figures are beyond your reach, do not despair – they will reduce significantly if a small group of co-owners get together to share costs. See the article by Harry Hopkins on group ownership on page 12.

Still in the frame?

Assuming you now have an aircraft in mind, you will need to look it over and do a deal with the owner. Do not do that without taking along an LAA inspector who has some experience in the aircraft type or construction method (wood, aluminium, composite, etc).

Just as with buying a second-hand car, there are pitfalls, so you need to be prepared – don't be fooled by a pretty paint scheme, as an aircraft's beauty needs to be far greater than just skin deep. A knowledgeable inspector will give the aircraft a thorough inspection and check the logbooks to assess its history. Armed with this knowledge, you will be in a position to know whether the proposed purchase is likely to meet your expectations. There is nothing wrong with buying an aircraft that requires some restoration or maintenance, but better to know that before you buy it!

The deal is done

You are the proud owner of your own Permit aircraft. Well done! Just a few important points to take on board before you fly off into the sunset.

First, understand that you are responsible for that aeroplane. It's your responsibility to ensure it's always in first class, airworthy condition every time it flies – not the LAA's, not your inspector's, but yours.

You also need to ensure that the aircraft's documents are kept up to date, that it's in Permit and any engine or component checks are complied with. Your inspector will help you do this of course, but never forget that ultimately it's your responsibility.

And finally, please don't be a mug and think you can fly your new aircraft without getting a proper check out. Hopefully the previous owner will be willing to deliver the aeroplane to its new home – do make sure that either their or your insurance covers this trip. Then get an LAA coach, an instructor, or the past owner to give you a thorough check out before you attempt to fly your new acquisition solo. Build your experience slowly, setting yourself maximum crosswind limits and minimum strip lengths for example, until you feel comfortable with the aeroplane and always on top of things. Then all you have to do is enjoy.

Enjoy the pleasures of going where and when you want, for as long as you want. Cross the Channel and enjoy the delights that mainland Europe has to offer, and go to fly-ins and talk incessantly to complete strangers about your aeroplane. The pleasures of ownership are boundless and far exceed just the money you will save over operating a C of A type or renting. Have fun! ***LAA***

Right With the assistance of LAA experts in its Airfields Working Group, the All-Party Parliamentary Group on GA (APPG-GA) successfully lobbied the Ministry of Defence to permanently retain or suspend closure of six of its airfields, including Henlow.

It's Good to Talk

LAA CEO Steve Slater explains the important role the Association plays in looking after the interests of its members and the General Aviation community

With more than 7,800 members, 2,600 operational aircraft and around 1,400 projects either in-build or under restoration, it's not unfair to say that the LAA is Britain's biggest air force. Importantly, as the largest powered, sport-flying organisation in the country, our voice and experience allows us to act as an important point of contact for regulators and decision-makers, both nationally and internationally. Not only are we one of the most active organisations in this respect, those that speak for us are regarded as the experts in the field, with the skills and the contacts to engage and influence our regulator, the CAA, and the government.

Within the UK there are a number of challenges which face sport flying. Over the past decade development pressures, most specifically the sale of land for housing, has meant that a number of much-loved airfields have disappeared and more remain at threat. Working with organisations such as the All-Party Parliamentary Working Group on General Aviation (actually Parliament's largest such group with more than 200 MPs and Peers) we've been actively involved with meetings right up to Ministerial level within the Department for Transport and the Ministry for Housing, Communities and Local Government, to develop a planning strategy to ensure airfields stay open and viable.

Airspace is a particular bone of contention, with many regional airports wishing to impose greater control on areas of airspace as far afield as Exeter, Farnborough, Oxford and Inverness. Here we work with fellow organisations such as the British Microlight Aircraft Association, British Hang-gliding and Parachute Association and British Gliding Association, to provide a united response as the General Aviation Alliance, responding to an ever increasing number of Airspace Change Proposals to ensure that they are sensible and proportionate.

We have high-level expertise available in the form of our Chairman Tim Hardy, a former senior executive for some of Britain's biggest airports, combining his role with that of the chair of Airspace 4 All (A4A); an organisation which provides strategic advice to the regulators. It is a key voice in ensuring GA interests in the CAA airspace strategy are upheld, reminding regulators that in addition to commercial air transport, they have a statutory requirement to deliver access to airspace for all users – including us!

One of A4A's other key activities is providing data to support the joint CAA and NATS focus on infringements of controlled airspace around major airports. These accidental infringements can at worst create significant risks to other airspace users and can add to delays as airliners are routed away from the offending traffic. The A4A research is now being used to improve the post-infringement review and retraining processes and additionally, A4A and the LAA are also working on reviews of the safety benefits of transponder, GPS and other electronic collision-avoidance systems.

We have a strong relationship, built on mutual respect, with the UK Civil Aviation Authority, which has delegated the responsibility for airworthiness oversight for our fleet of aircraft to the Association.

These aircraft range from home- and kit-built types to gyroplane and the many 'heritage' types which no longer have parts supply from their original manufacturers. Our work on wider airworthiness regulation and risk assessment has seen us gain less onerous aircrew medical requirements based on DVLA standards, the permission for selected LAA Permit aircraft to be used for flying training, as well as permission for appropriate aircraft to be flown at night or in instrument flight conditions.

LAA President, Roger Hopkinson, in addition to regularly meeting with senior CAA and Department for Transport executives on behalf of the LAA, is equally active in Europe. Supported by LAA members Graham Newby, Jim McKenna, Steve Slater and Wim van Malcot, he is Honorary-President of the European Federation of Light, Experimental and Vintage Aircraft (EFLEVA); a pan-European organisation of 15 associations which, like the LAA, work closely with the European regulator, EASA.

All of this advocacy adds up to a lot of work, often coming up against some seriously powerful vested commercial interests. We're therefore indebted to our members and volunteers for their untiring efforts behind the scenes, to make sure we can all keep flying! ***LAA***

Sharing an aircraft

Harry Hopkins explains how the cost of ownership can be reduced significantly by becoming a shareholder in a group-owned aircraft

Main The RV-4 that Harry and his friends built and now operate as an eight-person group. It is a cost-effective way to own a high-performance aircraft.

Right A lower cost option is to operate a classic type, like this delightful 1950s Jodel D112. Shares could be around £2K for a six person group.

Far right A used Eurostar might cost from around £30k, £7.5K each for a four-person group for a contemporary VLA aircraft. The type is alternatively available as a 450kg microlight.

Most of us would love to own our very own aircraft, but not everybody is able to commit to the cost or commitment involved in owning outright. Apart from initial purchase price, the responsibility for all the fixed costs, as well as the running costs and maintenance, can be rather daunting. However, for once in your life, there is a way you can have your cake and eat it – by having a share in a group-owned aircraft. Not only is it a lot easier on the pocket, but having others to share the responsibilities of ownership helps greatly to minimise any concerns you may have.

I first saw an RV-4 in 1988 at a fly-in in midwest USA, where I was living at the time. As soon as I saw it, I realised I needed one – you know the feeling I'm sure. The owner kindly invited me to try it on for size and as I slid into the snug front seat, the fighter pilot manqué in me insisted I must have one. OK, so there's a seat behind you for taking baggage, but once you're in that front seat you feel like you're in a fighter and it's the closest I'll get to a Spitfire or Mustang. When I came back to the UK, I brought most of an RV-4 kit with me.

The group gets going

I recruited three retired friends to help me build it and we borrowed (stole, really) a slogan from the Kansas City Dawn Patrol: 'We may not be good but we're slow.' After a period time of desultory building, our oldest member complained that if we didn't get on and complete it soon, he'd be too old to fly it, so we got our fingers out and finished it. We then sold shares, as a result of which I now own 1/8th of it, worth £5,500, but I can tell you that when I'm flying in that front seat it's all mine and feels just like my own little fighter. It's enough to satisfy the Biggles in me. I simply wouldn't have been able to afford the hangarage and insurance on my own, so I share the running costs and enjoy brilliant flying on a budget.

Of course, you don't have to build an aeroplane to share it, you can buy into an existing group or simply gather together a few similarly minded folk to form a new group and club together to buy an aircraft. Thus kickstarting your next flying adventure!

Typical shared costs

Some years ago, the CAA issued rules on shared ownership. These state that the minimum shareholding shall be 5%. It doesn't take A-level maths to work out that, therefore, the maximum number of shareholders is 20. However, very few groups are that big and a typical group may be around six owners; whatever the number, they should legally own a minimum share of 5% in the aircraft, though normally each will own an equal share.

Standing costs, like hangarage and insurance, are usually covered by a fixed monthly payment from each shareholder, while an hourly rate covers running costs. It may or may not include fuel and landing fees, depending on the wishes of the group, but it's necessary to include somewhere an element for tyres, oil, filters, repairs, etc.

Our group hourly rate includes fuel (conventionally called a wet rate) and excludes landing fees, but it does include a percentage which goes into an engine replacement fund. A 'dry' hourly rate would not include fuel costs. Let's take a look at some examples.

Fixed costs

We keep the RV-4 hangared at a licensed airfield, and with insurance and Permit fees, the fixed costs amount to around £5,200 per annum. Divided eight ways that means it comes to just £54 each per month.

Hourly costs

Including fuel, general maintenance costs and an engine replacement element the hourly rate works out at £63 per hour. A new, lower-powered modern VLA type such as a Sting, Eurostar or Bristell will offer similar purchase and monthly costs to the RV, with operating costs perhaps being slightly less due to lower fuel consumption.

A lower cost option is to consider owning an older, less expensive aircraft, like a Jodel, Aeronca or Emeraude, and operating from an unlicensed grass strip. Share cost might be as little as £2,000 to £3,000, and the monthly fixed cost £30 to £35 because hangarage and insurance will be considerably less at around £1,200 and £1,000 respectively. A smaller, less thirsty and cheaper-to-replace engine will typically put the hourly rate at £45 to £55.

Doing your bit

But remember, to achieve these running costs, each member of the group is expected to do their bit, keeping the aircraft clean and tidy and helping with maintenance tasks and the annual service and inspection. Often one or two of the group members will lead on maintenance but all are expected to help, even if it's just cleaning, removing panels and making the tea – that's vital to the social harmony of any group.

C of A types

The above examples are for aircraft flying on an LAA Permit, where owners can participate in the maintenance, working under the supervision of an LAA inspector. This of course has cost benefits not enjoyed by most groups owning Certificate of Airworthiness (C of A) aircraft, but all the other benefits of shared ownership apply to group-owned Cessna 152s, Piper PA-28s and other non-permit types.

Time to fly

One of the most common misconceptions about group ownership is that the aircraft won't be available when you want it, but remember, in the UK there are about 4,300 hours of daylight in a year, so even the most used light aircraft spends over 90% of its time waiting quietly for someone to fly it. The personal situations of some group members often means that they prefer to fly during the week, leaving the aircraft available for those who maybe only have weekends available. While we were building the RV, we all belonged to a 20-strong group with two aircraft, and they spent most of their time waiting to be flown.

All groups will have some sort of booking procedure, whether that be each member having a priority week in turn, or weekends being shared out at the start of the season. Online systems are available, which make it easy to check availability without having to ring around. Two or more members flying together is also a regular situation, each sharing the flying and making it cheaper still to enjoy a cross-country trip to a fly-in or rally.

Some necessary rules

An important consideration for any group is a set of rules. They're usually only needed when something goes wrong or members don't see eye-to-eye on some unexpectedly contentious point. One of the biggest issues a group will face is when one of the members decides he wants to move on and needs to sell his share. Rules need to be specific on how this is done. Some groups have a clause that gives the existing members first refusal for purchase of an available share, and most will want to vet a potential new member. A suggested outline for a set of group rules is available for guidance on the LAA website (*www.tinyurl.com/cslpsae*).

Group ownership will certainly give you a great deal more bang for your flying buck than renting, plus you'll have a new circle of friends to fly with and who will pass on their collective expertise and guidance. For many, it's the perfect 'next step' in progressing their aviation enjoyment. ***LAA***

"It is a real pleasure to see these vintage aircraft at fly-ins and rallies most summer weekends and they will inevitably draw crowds of admirers"

Main A real rarity, the DH 83 Fox Moth G-ACEJ, built in 1933. The pilot sits out in the open with up to three passengers in the enclosed cabin.

Left The Tiger Moth represents many people's idea of a vintage aeroplane and a healthy number are still active in the UK on the LAA fleet.

Below There are many affordable and eminently practical vintage and classic types, like this delightful Piper Vagabond.

John Broad looks at the LAA's classic and vintage aircraft scene

TIME-HONOURED TYPES

The good old days, eh? Everyone remembers moments in history, both in the global sense and in their own lives. It may be through the pages of a book or on the silver screen that images of old aeroplanes and famous aviators entered your psyche. Or perhaps memories of cycling down to the local airfield as a youngster in the hope of being allowed in and getting close to the aeroplanes and the pilots who flew them.

Old aeroplanes have a magnetic attraction, and the LAA looks after many of the UK's vintage and classic light aircraft under its Permit to Fly scheme. We're helping preserve our aviation heritage, and you too can become an active participant.

What age defines vintage and classic aircraft?

There are differing opinions on this, and the fact that history doesn't stand makes a finite definition difficult. However, The Vintage Aircraft Club's definitions are, that to be defined as a 'Classic' it has to be at least 25 years since the type first flew, and to be 'Vintage', 40 or more years since the type's first flight.

What types of aircraft are they?

It might come as a surprise to learn that many of the aircraft at your local flying club are now considered as Vintage types! The Cessna 150, which can trace its heritage back through the C140/C120 of the early post-war years, first flew in 1957 so is now over 60 years old. Even it's later reincarnation, as the C152, has entered the vintage classification as it has been flying now for over 40 years.

However, perhaps of greater interest though, is the large number of readily available aircraft that fall within the vintage class and are operated on LAA Permits. These aircraft range from simple ex-trainers to quite complex machines and are almost invariably taildraggers. One-, two-, three- and four-seat Jodels, Piper Cubs and Vagabonds, Cessna 120s, Luscombe Silvaires, Aeronca Champs and Chiefs and the many Marks of Auster make up the bulk of LAA Vintage types.

Are these aircraft expensive?

Purchase price and maintenance costs should be considered. The former start relatively low on many of the types listed: a two-seat 65hp Jodel D112 can be had for as little as £10K in the current market, while an Aeronca, 90hp Jodel, Vagabond or a Luscombe will cost perhaps up to £18K. These and the more sought-after Cubs use the small Continental engines for which spare parts are available and relatively affordable. Many of the Austers use dH Gipsy or Cirrus engines, which are older and rather more expensive to operate and maintain.

Are spares available?

A number of manufacturers produce the more in-demand airframe parts for early Pipers, Luscombes and Aeroncas, and for Jodels the simple wooden structure is easily repaired – plans and aircraft grade wood, ply and glues are readily obtained.

All these aircraft are of quite basic construction and those parts not available 'off the shelf' are usually quite straightforward to fabricate. Most hardware is also available off the shelf because it is standard American aircraft or European metric specification, though again parts for Austers, being of long superseded British manufacture, may be harder to come by.

Is expert help available?

Yes, for all of the popular makes there are type clubs whose members have a great deal of expertise and knowledge. If you have a problem, there will almost certainly be somebody at the end of a phone or email who can advise on how to fix it or who to contact for the appropriate spares. There are also a number of aircraft restorers and small companies who can turn a crisis into a minor inconvenience by finding, renovating or even making hard-to-locate parts.

How about not so common types?

Well, the LAA certainly has plenty of rarities on its books as we now oversee the airworthiness of more than 30 of the famous Shuttleworth Collection aeroplanes, which date back to before WWI. These also include some of Britain's most historic aircraft from the Golden Age of flying in the 1930s, including the record-breaking DH88 Comet and Percival Mew Gull racers as well as a wide variety of other classics.

Many more wonderful types from the inter-war years including the ubiquitous Tiger Moth, Miles Whitney Straight and the Miles Hawk Speed Six, and a variety of other rare dH Moths, Chipmunks and Scottish Aviation Bulldogs, and Stampes, to mention just a few. These types are somewhat rarer, sometimes unique in fact, and can command high prices when they become available.

Are they practical to operate?

Absolutely. Many of them were the trainers and tourers of their day, some even making historic long-distance flights across the globe. One should, of course, remember that as an owner of a rare vintage masterpiece you are in fact merely its custodian for a period of time, and you have a moral obligation to preserve such aircraft for future generations to enjoy. But these are certainly not hangar queens – it is a real pleasure to see these vintage aircraft at fly-ins and rallies most summer weekends and they will inevitably draw crowds of admirers.

Are older types difficult to fly?

Some of the very old types can have their own quirks, tailskids instead of tailwheels, perhaps no brakes, and flying controls that are not as effective as more contemporary types.

However, those from the immediate pre-WWII era and beyond are usually not dissimilar to what you are used to, although as tailwheel aircraft they do have to be flown with more precision and skill than your typical tricycle Cessna trainer. However, those skills are easily learned; in fact the LAA has its own Pilot Coaching Scheme (see page 28), whose coaches can impart those skills expertly and affordably.

Where can I buy my aircraft?

The more common Classic and Vintage types are often advertised in the classifieds section of the LAA magazine *Light Aviation* and other aviation publications.

It is also worth asking around at airfields and strips, as often old and unused aircraft sit in the back of hangars waiting for somebody to find them, fall in love with them and restore them to their former glory. The LAA system of self-build and maintenance is ideal for bringing these old aircraft back into service with the help of our LAA inspectors.

If you do take the steps towards owning and operating a fine Classic or Vintage aircraft, you will be joining a section of the LAA that has many like-minded members to help you and to join you at events all around the country.

Classic and Vintage aircraft will give you many hours of intense pleasure, maintaining, polishing, flying and talking about your machine to children, fellow pilots and everyone in between! ***LAA***

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The International LAA Sywell Rally and Exhibition

Association members and the public come together to celebrate all that is great in recreational aviation.

By Rally Chairman, **Brian Hope**

1 An overhead view of the Rally site at Sywell in 2018 shows a large number of aircraft in the air park.

2 The popular Homebuilder Tent contains part-built aircraft and demonstrations of build techniques.

3 The Minister of Aviation, Baroness Sugg, at the 2018 Rally, trying her hand at riveting the skin of a Zenair CH750.

4 The Rally attracts aircraft from all over Europe, this is Belgian Bart Verhees' self-designed and built Delta flying wing.

5 The popular fleamarket is a great place to buy a bargain or get rid of no-longer wanted parts.

Every year, on the weekend following the August Bank holiday, the LAA holds its International Air Rally and Exhibition at Sywell Aerodrome in Northamptonshire. The Rally is a three-day celebration of recreational aviation – an event where members, fellow pilots and enthusiasts meet old friends, make new ones and generally have a good time. Given good weather it is likely that around 1,000 aircraft will visit during the three days.

There is a slightly more serious side to the event of course. As an Association, we want to show the world what recreational aviation has to offer, the trade exhibition and massed ranks of parked aircraft presenting the perfect backdrop for people to come and see the opportunities that the LAA offers for affordable, fun flying.

And unlike many events of this size, it's possible to mingle with the aircraft and pilots in the aircraft park, giving you a real opportunity to learn about the many types that are available on a Permit to Fly. Aircraft owners are a friendly bunch and are only too happy to discuss the merits of their particular aircraft with you.

If you are an LAA member, access to the airside park comes as part of your £6 for-three-days Rally entrance fee. For non-members, entry to the Rally is £12 for the three days, but airside access is an additional £10 per day. You can of course join the LAA at the Rally and receive the free airside member benefit.

Each year we have a Homebuilders Centre, which is another ideal introduction to what you can achieve with the LAA. This exhibit brings together many aspects of the Association's build and maintenance activities, with tutors explaining how to work in wood, metal and composite, as well as examples of part-complete aircraft projects so that you can see what lies beneath the skin. Members from the LAA Engineering team and LAA inspectors are on hand to answer your technical queries too, so if you are new to LAA aircraft you will be able to get all those niggling questions answered in one go!

Plenty to see – and buy

There are a further three marquees packed with exhibitors, plus outside stands, all representing the trades that support UK recreational aviation – kit and avionics suppliers, pilot supplies, books and charts, engines, propellers and more – there's always plenty to see and buy.

Those people that fly in are able to camp beside their aircraft, but there is also a separate campsite for arrivals by road, complete with hot showers and regularly-serviced WCs. There's plenty of food and drink on site too, from the Aviator restaurant in the

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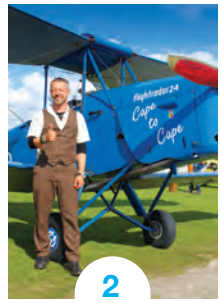

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1 Owners, builders and enthusiasts alike, all enjoy an opportunity to discuss the technicalities of their aircraft. Here they examine an RV's nose gear.

2 As part of the Rally's seminar programme, in 2017 Johan Wiklund flew his DH60 Gipsy Moth from Barkaby in Sweden to present a talk on his epic flight from Sweden to Capetown, South Africa in 2015.

3 Chief Engineer, Francis Donaldson, and his team are on hand to discuss technical issues throughout the event.

4 A number of awards are presented at the Rally, Dave and Sheila Broom's colourful Van's RV-7 was awarded Best Kitbuilt in 2018.

Motel, to the catering vans in the exhibition area, and catering in the licensed 'Hangar 1' entertainment facility each evening. Friday evening is an opportunity for relatively quiet drink and chat, but Saturday night is live music night, plus a beer festival – time to let your hair down. The LAA Rally is always a fun event, so mark the date, the Friday, Saturday and Sunday after the August Bank Holiday (30/31 Aug/1 Sept 2019, 4/5/6 Sept 2020).

Come for the weekend or for a day, but do yourself a favour, and come! ***LAA***

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Taking off near you

Brian Hope introduces the Gyroplane, a form of sport aviating that has enjoyed significant growth in the UK in recent years

Above The Rotorsport Cavalon is a modern, enclosed two-seat, side-by-side factory built sport/training gyroplane, typical of the high quality machines that have reinvigorated the gyroplane industry.

We talk a lot about aeroplanes in this magazine, but we mustn't forget that the LAA has a long history with gyroplanes. For those of you not so au fait with recreational aviation, gyroplanes have a rotor blade that, unlike a helicopter is not driven by an engine. Instead it is turned by the airflow passing through it as the gyro is propelled along the runway by a propeller pushing the machine along in much the same way as a flexwing microlight. The spinning rotor generates the lift that enables the machine to leave the ground.

In the early days of LAA gyros, just like LAA aircraft, the machines were built from plans and were restricted to single seats. Learning to fly a gyro was rather problematic because there were no two seaters other than gyro-gliders which could be towed down the runway by a car – the stick time the student could gain from this was thus very limited. The complications meant that training airfields and instructors were in very limited supply.

Notwithstanding the problems, homebuilt gyros enjoyed reasonable popularity during the 1970s and 1980s, there even being the odd kit machine available, but popularity waned thereafter, with only a small core of enthusiasts keeping the gyro flag flying.

All that changed about a dozen years ago when, on the Continent, a handful of manufacturers started building two seat gyros, and the sport really took off with a bang.

The German-built AutoGyro machines (imported by Rotorsport UK), and the Italian-built Magni factory-built trainers were approved in the UK, and a team of dedicated instructors grew the training facilities across the UK and worked with the CAA to develop a new training syllabus.

Training school

We now have a situation where there is likely to be a gyroplane training school at an airfield in reasonable striking distance of most of the UK. Training for a Gyroplane PPL requires a minimum of 40 hours training, or 25 hours if you already have an aeroplane Pilots Licence.

As the popularity of the sport has grown, so too has the range of machines available, with both Magni and Rotorsport now also offering enclosed cockpit two seaters.

As yet there is no new, factory built single-seater available in the UK but hopefully that will change in the future.

■ For more information on gyroplanes contact The Gyro Experience training organisation: *http://gyrocopterexperience.com* or the British Rotorcraft Association (BRA): *www.britishrotorcraftassociation.co.uk* which is now a Strut of the LAA. ***LAA***

Through the Letterbox

Read all about it! Brian Hope extols the virtues of the LAA magazine

As you read through this magazine, I hope you are coming to realise the many benefits there are to belonging to the LAA. Another, as yet unmentioned, is the full-colour, monthly magazine that every member receives.

Light Aviation is a quality publication available only to LAA members – it's not available on the newsstands – and is packed with features about every aspect of the recreational flying scene.

Each issue contains an in-depth flight test, news of what our members are building and restoring, safety-related information and technical articles from our Engineering department to help you better understand the design, maintenance and operation of light aircraft. Our Coaching Scheme mentors often dispense much useful knowledge for pilots to hone their skills, and members regale us with tales of their exploits.

The LAA is a very broad church with members' interests ranging from simple, low-cost microlights to high-specification, four-seat tourers, and from WWI replicas to state-of-the-art machines with glass cockpits that would have been the envy of many airliner cockpits of just a few years ago. Our members range from enthusiasts with an interest in recreational aircraft to commercial pilots with many thousands of hours, and from those who have built several aircraft to those who would rather enjoy the fruits of somebody else's labour. But they all share a passion for aviation, a passion that is clearly evident in the pages of Light Aviation as it brings you the news, views and interesting stories from the recreational flying scene each and every month

Find details on line at
WWW.LAA.UK.COM

South African Smoooooth!

(Extract from Francis Donaldson's Sling 2 flight test) Light Aviation January 2019

The Sling 2 has an airframe of essentially entirely rivetted aluminium construction, with fibre reinforced plastics used for such things as wing and tail tips, canopy frame and wheel spats. Unlike the popular Van's kits, the Slings confine solid rivets to the factory-assembled wing spars and leave the amateur kit builder with the much easier process of blind riveting, the rivets being set using a pneumatic squeezer, which largely de-skills the process.

Looking through the weight and balance documentation for G-SNGZ, the aircraft falls nicely within the weight and cg range whether flown solo by a lightweight pilot or a pair of heavyweights, and we had to fully load the very back of the rear baggage bay during the test flights to approach the aft cg limit specified in the POH.

Unusually among Rotax powered aircraft, the max gross weight of the Sling 2 is a massive 700kg, allowing 279kg payload – this is one aircraft where two average sized people (86kg each) can load up with full fuel (146 litres) without exceeding max gross weight, which working generously on a 22 litres per hour consumption, gives an endurance of six-and-a-half hours!

With the prop controller on the take-off setting yielding an RPM of just under 5,800 at full throttle, the take-off was entirely uneventful despite a brisk crosswind from the left, the more critical side with the clockwise turning (seen from the back) four-stroke Rotaxes.

Rate of climb at max gross weight is over 900ft/min at 74kt – not bad for the 115hp turbocharged engine, considering the aeroplane's size and weight.

Levelled off, and with the prop set for cruise, she hums along very comfortably at an indicated 117kt, burning 25 litres an hour at 5,400rpm. Bringing the throttle and RPM back to 5,000 with 28in of manifold pressure yields 103kt, burning 19 litres an hour.

She's by no means the fastest in her class but nevertheless very respectable bearing in mind the aeroplane's load carrying capability, fuel burn and comfort levels.

Meet the Members

Ajay Prince

From Light Aviation, January 2019

Welcome Ajay, can you tell us something about your career to date?
I am a freelance IT consultant working primarily on software for banks. I did my schooling in India, followed by a Bachelor of Engineering in Electrical and Electronics Engineering in Malaysia. I then did my Masters in Microsystems at Heriot Watt University in Edinburgh. Subsequently, I returned to India to work for an Icelandic IT company which, after an initial stint in India, offered me a chance to work in Iceland for a couple of years, following which I was offered the opportunity to move to the UK.

What started your interest in aviation?
My grandfather, who was in the Indian Air Force, introduced me to flying. When I was five years old, he let me sit in a parked MIG fighter at the Sulur Air Force base in the south of India.

In what, where and when was your first flight?
My first training flight, which was a trial flight, was in C152 TF-FHI in Reykjavik. I got on well with the instructor and decided to do my PPL there.

How did you hear about the LAA?
I was flying C152s from a flying club at Biggin Hill for a couple of years after I revalidated my license in the UK. I was looking for ways to fly more economically when I came across the LAA and was fascinated by the versatility and running costs of types such as the Jodel. I have been a member since April 2017.

Has the Association helped you meet your aims?
The LAA has helped in owning and operating an aircraft economically. We were lucky to get a fantastic LAA inspector who painstakingly helped us find a good Jodel. He is also a coach and subsequently, through the LAA coaching system, I also learned to fly the Jodel with him. To learn in such an informal setting i.e. from a grass airfield, on a vintage plane and from a great instructor, was very different compared to flying from the controlled airports I had been used to, making it a very special experience. I thank the LAA for making all of this possible.

What made you choose a Jodel?
As a newish pilot, I was looking for an aircraft that was similar to the C152 in terms of mission, which mostly involved one to two-hour flights with the occasional longer flight.

Unable to afford the annual costs for CAA types, I was set on looking at a suitable LAA type, and Jodels seemed to tick a lot of boxes. It is a simple aircraft and has proved to be affordable to maintain so far.

How did you get on converting to a taildragger?
The first few lessons were eye opening to say the least. However, I kept hearing from other taildragger pilots, who had watched me during my training, that it would soon all become second nature at some point. Some four or five lessons later, it did indeed come together.

Would you recommend other pilots go the LAA route?
For anyone who is not able to afford hiring an aircraft and wants to expand their horizons, I would seriously recommend buying a share in an LAA type. Your money certainly goes farther.

I have limited experience, just 135 hours in the 152, and 80 in the Jodel. The Jodel is a more enjoyable aircraft to fly although it requires more skill, but in turn that makes you a better pilot.

Would you like to go touring?
This is something that has been on the back of my mind since I got my PPL.

I have only been as far as Le Touquet but I would like to fly to Scotland and Venice-Lido this year or next. If time allows, I would love to plan a flight to India. ***LAA***

Right Ajay Prince with the Jodel D112, G-INNI, which he shares and flies from Kent.

"Kits have taken an increasing share of the market because they dramatically cut down the amount of work and time needed to complete a project"

Main The Czech build TL Sting is an example of a modern kit where most of the major sub-assemblies, wings, fuselage etc., are supplied readymade.

Left This BX2 Cherry is a plans-build design. Sleek, retractable and attractive, it is built primarily from aircraft grade wood and ply

Right Building from plans is a true labour of love. This is Phil Cozens' replica Comper Swift, an utter work of art, rigged for a final check before fabric covering begins.

Brian Hope answers the basic questions about building your own aircraft – and points out that help and encouragement are always at hand

Building Your Own

Have you ever even vaguely considered building an aircraft but then quickly dismissed the idea because you have so many doubts and unanswered questions? If so, hopefully our Q&A will allay some of your concerns and encourage you to reconsider.

Every year a substantial number of LAA members take up the challenge of building their own aircraft, and since the advent of kit aircraft, most of them complete the task in a fairly short period – usually one to four years, depending on the level of pre-construction of the kit. On average, around 70 newly constructed aircraft are added to the LAA fleet each year.

A much smaller number of members decide to build from plans, and these aircraft almost invariably take much longer to complete, as the builder must source raw material and produce all the parts that would normally come pre-made in a kit. Spreading the cost over a longer period, the sheer enjoyment of crafting individual components, or the mere fact that the type of aircraft you desire is not available as a kit, are some of the reasons you might choose to go the 'scratch-built' route.

The available range of kits and plans to choose from is extensive, from low-powered, single-seat microlights to sophisticated, high-performance four-seaters. There are fighter replicas from WWI and WWII, gyrocopters, amphibians, biplanes and triplanes, pushers and tractors, trikes and taildraggers – there is almost certainly a design for every taste and every pocket.

Can I build whatever I like?

Not exactly. In the UK, the Civil Aviation Authority dictates that British aircraft have to be shown to meet minimum design and airworthiness standards.

The LAA is tasked with ensuring that amateur-built designs meet those standards before they can be approved to be built in the UK. But there are still plenty to choose from with more than 200 LAA-approved designs, with a handful of new types added each year.

How do I find out what is approved?

A comprehensive list is available on the LAA website (*www.laa.uk.com*) – click on 'LAA Aircraft' and you will then be able to access the list. In general, of the many approved designs, perhaps about 90% of builders choose from around 30 designs because these are the contemporary types.

Are all the designs available in kit form?

No. The kit revolution really didn't take hold until the early 1990s. Prior to that, most amateur-built aircraft were built from plans, the builder sourcing his materials from suppliers of aircraft-quality stock in the UK and abroad, typically the US. For the last 25 years though, kits have taken an increasing share of the market because they dramatically cut down the amount of work and time needed to complete a project. They do of course work out more expensive because the kit supplier is doing much of the work that a plans-builder would have to do.

Can I submit an unapproved design for consideration?

Yes you can, the LAA approves about half-a-dozen new designs every year and each will have been submitted by a member.

However, although the Association does not allot charges for the approval process, as the proposer of a new type you will have to supply a significant amount of design data in the approval submission for the type. Much of the required information may be available from the aircraft designer. If not, you may have to contract an aeronautical engineer to produce it.

Alternatively, it may be possible to load test a completed example of the aircraft, or in the case of a design that has been operating abroad for some while, prove compliance based on a satisfactory service record. More information on submitting a new type can be found in the Technical Leaflets available via the 'LAA Aircraft' section of the LAA website (*www.laa.uk.com*).

Could I design my own aircraft?

Yes you can – but be advised that it is not for the faint-hearted. There are a small number of members who have successfully designed, built and flown their own designs, the majority of them having taught themselves how to carry out the required stress calculations – maths that is a step too far for most of us. Own design is a true labour of love, a personal intellectual challenge – and not to be undertaken lightly.

OK, I've chosen my design, how does the build system work?

Having selected a design and bought either a complete or part kit package, or a set of plans, you register your project with the LAA Engineering department. You will then receive a project pack, which will contain details of the inspection schedule that will need to be followed as the build progresses.

You then need to contact a local LAA inspector, there are around 350 inspectors covering the UK, so it's highly likely that there will be several in your locality. A list of inspectors can be found via the 'LAA Aircraft' link on the LAA website. Work cannot commence until an inspector has agreed to oversee a build and has inspected the build workshop, taken a look at the kit or plans and materials, and discussed procedures with you.

Although inspectors have an 'official' role of making sure you build the aircraft to a satisfactory standard, they are also a great source of advice and the builder/inspector relationship invariably becomes one of trust and friendship.

Do I have to build it exactly as standard?

It's certainly easier to build the aircraft as the designer intended, but you can make changes, either major or minor, subject to approval by LAA Engineering.

You should discuss proposed changes with your inspector, who will offer advice on the suitability of your proposals, and if you decide to go ahead you must submit your modification via the Mod Forms available on the website. Be advised though that, as with submitting a new type, the onus will be on you to provide any stress data required to support the suitability of the modification.

Previous builders of the same aircraft type may well have already successfully applied for modifications, such as using a non-standard engine or propeller, or fitting strobe lights, etc, and these mods may be available as Standard Mods, which you can easily incorporate by carrying out the changes exactly as they were made by the previous applicant.

I am totally new to aircraft building, is help available?

The prospect of building an aircraft can seem very daunting but plenty of help is at hand. Your inspector will be a mine of information and always ready to offer help and advice. The LAA also runs a growing number of engineering courses where you can learn the basic skills that will give you the confidence to make that first wood joint or buck that first rivet (see p26).

In many cases, you will have the kit or plans supplier to fall back on as well; they usually offer an email or even a telephone help line. Fellow builders are also usually keen to help.

Right The Van's range of riveted aluminium kits can be had as a kit of parts or part assembled. This is the four-seat RV10.

Below right The panel and interior of today's kits are a match for production aircraft and most manufacturers offer a range of trim kits. The panel is often confined only by your imagination and pocket.

Below left You don't need a huge space to construct an aircraft – here a builder is constructing a Zenair CH750 in his single car garage.

You can find out who near you is building a similar type of aircraft, and arrange to visit for inspiration and guidance. The local Strut will also certainly have members with valuable skills and build experience.

And last but certainly not least, there is the internet. Most of the popular kits and plans types have builder or owner forums where technical queries will elicit almost immediate responses from those builders who have gone before and know how each and every component can be made or fitted. Many builders also have their own blogs where they detail their build and post a great many photographs, which can be of immense help when you are uncertain of how to do a particular job.

Can I get help with jobs that are beyond me?

Yes you can. With today's high-tech glass panels, it is not unusual for builders to seek help from those with more experience in installing avionics, and many members contract out the spraying of the aircraft to professionals.

However, the regulations dictate that you must be involved in 51% of the build, you cannot simply farm out the entire job. The rules are strict on this, and if it is discovered that you have not built sufficient of the aircraft, you will not receive a Permit for it.

Can I make the first flight in my new aeroplane?

That depends on your level of experience. If the Engineering department considers you have sufficient recent time in an aircraft of the same or similar type, they may permit you to carry out the test flying. If you do not have the required experience, or prefer not to carry out the test flying, you can nominate a pilot, or Engineering can suggest a suitable person.

How much flight testing is required?

For a new design, or a highly modified example of an existing design, the Engineering department will stipulate a minimum number of hours of flight testing within a limited area – say 25nm radius of base. For an already approved design it will be five hours, two hours of which will be required as a single 'endurance' flight.

And that's it?

Yes, that's it! Once the test flying has been completed, the Engineering team will check your paperwork and all being well, within a couple of weeks or so you will receive your Permit to Fly and the world will be your oyster.

I hope the above at least gives you the basics of building your own aircraft and you will see that it really is a possibility for you. I think the most important thing you can take away from this article is that you will *not* be on your own. Many have gone before and they too started with the apprehension that perhaps you are feeling. However, they are willing to help fellow builders, and the inspectors and LAA courses offer practical help to get you started.

Building and flying your own aircraft is an educational and character-building exercise that few other aspects of modern life can equal. It's an achievement that will stay with you for the rest of your days. Good luck with that build! ***LAA***

Start them young!

Steve Slater discusses some of the LAA-supported educational initiatives which are designed to encourage youngsters, and others, into aviation

Above *Spirit of Brooklands* was the first UK Build-a-Plane project and was built by youngsters around the UK. It spawned a healthy number of similar school projects.

If you harboured a passion for flying from an early age, you're certainly not alone, and even today, in the era of virtual reality games, there's some pretty strong evidence that 'our sort of flying' can engender a spirit of excitement that beats, hands down, the electronic equivalent.

An equally important element is that both sides, young and old, get a real buzz from LAA activities.

At events around the country, as well as Young People's Days at the LAA HQ at Turweston in Northamptonshire, LAA Education volunteers give their time to allow young people to get close to aircraft – and look at some of the engineering involved. There's an equal buzz on both sides, gained by having a keen audience whose enthusiasm, in one leap, bridges the generation gap. The volunteers get every bit as much fun out these activities as our youthful guests!

YOUTH AND EDUCATION SUPPORT (YES)

Since the start of the millennium, one of the prime movers in using LAA activities to inspire and encourage young people to get involved in aviation has been the 'Youth and Educational Support' strut, or YES. This group of dedicated pilots, enthusiasts, educators and volunteers are passionate about encouraging young people to achieve a better understanding of general aviation and therefore ensure its future in the UK. Their activities include exhibits and activities for young people at aviation shows, talks and practical activity sessions for schools and youth groups, the development of curriculum and classroom support packages and arranging aviation activity days at schools and other locations.

BUILD-A-PLANE

A key driver to the involvement of many young people has been a series of Schools' Build-A-Plane projects, supported by Boeing and the Royal Aeronautical Society, as well as the LAA.

The first Build-A-Plane, *Spirit of Brooklands*, was built from a Rans S6 aircraft kit in 2003 to celebrate the centenary of powered flight.

The aircraft was built by Scouts and Air Cadet Units, with the fuselage built in Manchester, the port wing in Mold, Wales; the starboard wing in Musselburgh, Scotland and the tail in Lisburn, Northern Ireland. It made its maiden flight in 2005 and, after giving experience flights to many of its builders as well as displaying at a number of air shows, was sold to a private syndicate on the Isle of Wight.

The Boeing and LAA-supported Schools' RAeS Challenge has seen six aircraft projects completed between 2013 and 2019. While the Boeing-backed scheme has now come to an end, at least 15 build-a-plane aircraft have been registered around the UK, almost all of which are being overseen by LAA Inspectors and mentors.

One of the most distinctive is the *Spirit of Goole* Sherwood Ranger open-cockpit biplane, built by a group of young people from East Yorkshire (known as 'Sprockets') giving them the opportunity to learn new skills in engineering and an affordable way to learn to fly an aeroplane. The aircraft made its maiden flight in 2016 and is now providing experience flights to its builders, while another newly built aircraft, a two-seat Eurofox, took to the air at the end of 2017 and is now also providing experience flights for its builders north of the border at Air Space Kinross.

AVIATION ART

It's not just about building aircraft. The LAA acts as a UK facilitator for the annual Federation Aeronautique International aviation art competition for 6-17 year olds, which attracts thousands of entries from across the world. In order that UK entries can be forwarded it is necessary to hold an annual national competition and since 2017, the LAA in association with the Royal Aero Club agreed to facilitate the competition here. Other supporters include the Guild of Aviation Artists (GAvA) and *Pilot* magazine. The initiative has proved a huge success with the LAA being invited to host aviation painting events at locations including Farnborough Air Show and the Shuttleworth summer airshows, offering youngsters a great opportunity to get up close to aeroplanes! ***LAA***

Main Budding young artists in the LAA marquee at the Farnborough Airshow. In an age of computer games, painting and drawing remain a fascinating activity for youngsters.

A Great Place to Learn

Steve Slater outlines the Association's engineering courses that provide members with the confidence to build and maintain their own aircraft

One of the great things about flying and aircraft engineering is that one truly never stops learning. Whether it is mastering a new flying technique, discovering the latest technical innovation, or relearning a bygone constructional method, there is always something to add to one's education – and with the knowledge pool that exists within the LAA, it really is a great place to learn.

This is becoming ever-more important with a subtle change in LAA membership in recent years, from builders to buyers. While around 100 new homebuild projects are initiated each year, it is noteworthy that an increasing proportion of members are today flying aircraft that they have purchased, either as factory-built, from the original constructor or in many cases, several owners and even generations 'down the line'. Inevitably these owners are likely to know less about the internal workings of their aircraft than the chap who built it.

In response to this, the LAA is developing a series of training courses and events that will allow owners and enthusiasts to develop their hands-on skills and knowledge of aircraft engines and structures. Some of these courses are already well-established favourites, which we'll maybe run more frequently or even perhaps set up additional courses elsewhere in the country to meet demand. Others are designed to take advantage of our own dedicated classroom and training workshop facilities at our headquarters at Turweston in Northamptonshire, offering a central location convenient to most members.

Aircraft woodwork

One of our most popular courses, which most definitely won't be changing its venue, is the aircraft woodwork course run by master craftsman Dudley Pattison from his home workshop near Swindon. As well as building a string of award-winning aircraft, Dudley is an expert on sourcing aircraft-quality timber and materials, making him an acknowledged guru on materials and techniques.

The one-day course at Dudley's workshop is ideal for anybody contemplating building or repairing a wooden aircraft.

The comprehensive course is dedicated to learning the fundamental woodwork techniques; covering wood selection, cutting, drilling, scarfing and gluing. Other areas include shaping, multiple-part production, laminating formers, rib production and the internal finishing of timber, offering all you need to know to gain sufficient confidence to start your own project. All necessary tools and materials are provided, as well as a first-class lunch prepared by Duds' wife!

Aircraft metalwork

Given that a growing number of the most popular kit aircraft feature riveted aluminium construction, the LAA metalwork courses are unsurprisingly rapidly sold out.

The instructors, led by LAA inspector Gary Smith, are all builders of Van's RV-series

aircraft and they present a sheet metalwork 'primer', which encompasses the fundamental techniques a builder would need to commence work on a metal aircraft kit.

Each day-long course is restricted to eight people to allow a full hands-on experience of the cutting, bending, drilling, dimpling, de-burring, and riveting of sheet materials, leading to the construction of a Van's Aircraft tool box, which requires each of the engineering techniques, and which the proud new sheet metal-worker can take home as a keepsake.

Engine courses

A series of engine courses have been developed, focussing on the best practices in terms of pilot maintenance and operation to ensure that the engines are kept in optimum operating condition.

Among the most popular (unsurprisingly, again, given their prevalence across the LAA fleet) are the courses designed to guide Rotax 912 and 914 owners through engine installation and pilot maintenance and servicing issues. In addition, a series of courses for the latest Rotax 912iS engines has been developed to guide owners through the additional factors imposed by the electronic fuel injection and engine management systems.

For owners of aircraft powered by Jabiru engines, the LAA offers courses to allow owners to become familiar with all the components of the engine and how they vary with each generation, as the Jabiru design evolved. This course also teaches owners about how the various *Engine Service Bulletins* are applied to the engine and how to carry out a routine 50-hour service. Further engine courses are also being developed to allow LAA members flying more traditional types, including 'heritage' types, to learn a little more about the service and maintenance of their engines. These are set to include the American Lycoming and Continental power units and the iconic de Havilland Gipsy Major.

Fabric work

As many heritage aircraft still employ fabric covering over either wooden or steel tube structures, the techniques for maintaining, repairing or even recovering fabric-covered aircraft remain as important today as they were when they were first introduced more than a century ago. The LAA courses will take you through the contemporary fabric covering processes using modern synthetic materials, preparing structures, applying, shrinking and finishing, and will in addition look at the more advanced techniques used by aircraft restorers with more traditional materials such as cotton or linen, as well as rib-stitching and final painting techniques.

Electronics and avionics

With the development of ever-more sophisticated electronic flight display systems on LAA aircraft (some of which can put a Boeing or Airbus to shame), the electronic and avionics courses will act as an introduction to permit aircraft electrical systems.

They are designed to be suitable for beginners, or electrical experts who know little about aircraft systems. The wiring course includes: planning your installation, batteries, battery performance and the options available, switches and contactors; how to choose them and how they work. Also covered is aircraft wiring including sizing, crimping, soldering and routing, using circuit breakers and fuses, along with the basics of how alternators work and how all the elements of a basic VFR electrical system fit together.

The avionics course provides an introduction to typical permit aircraft avionics, their selection and installation, and assumes no previous knowledge or attendance of the aircraft electrics course. It includes a general introduction to radio, GPS; EFIS glass panels, autopilots and transponders, panel planning and layouts, as well as understanding how avionics interfaces work, wiring techniques for common avionics connectors and an introduction to aerials and their installation.

Owner maintenance

One of the benefits of operating an aircraft on an LAA-administered Permit to Fly, is that an owner is allowed to carry out a significant amount of self-maintenance, provided the work is subsequently approved and signed off by an LAA Inspector. However, that can be daunting for some owners who are worried that they don't know enough, or worse still, might overstep their skill or experience level.

The extent of pilot maintenance presently allowed is a hard-won privilege granted by the CAA. The LAA expects that anybody carrying out such pilot maintenance does so only if they are confident that they have the necessary knowledge, skills, tools and facilities to complete the task to a satisfactory standard. Safety and airworthiness is the prime concern and abuse of these privileges can only lead to their curtailment. The LAA Owner Maintenance Courses will attempt to remedy those concerns by offering advice on what areas of maintenance can legitimately be carried out by a pilot.

The course will also advise on how a duplicate inspection should be carried out, following reconnection or adjustment of any engine or flying control. For LAA aircraft, a licensed pilot who is the owner of the aircraft and who is a member of the LAA, is an acceptable signatory for one part of a duplicate inspection. Most importantly, the course will give owners and pilots a close look at what goes on 'under the skin' of an LAA aircraft and can give pointers on what to look out for in terms of longer term maintenance planning.

Of course, we all prefer to fly during the balmier summer months, so many of these courses only take place in the autumn, winter and early spring. ***LAA***

Main One of the metalwork instructors, John Michie, explains the finer points of aviation metalwork as his student assembles a Van's toolbox.

Above Dudley Pattison demonstrates how to produce a scarf joint on thin plywood.

Left The starting point for producing a complex panel like this RV-8 example, is learning the correct techniques to plan and fabricate a wiring loom. Our electrical wiring courses will show you how.

Main *Too many pilots come to grief when flying a new type. This TLAC Scout for instance, may have an engine and avionics unlike those you are used to, and exhibit much 'sportier' handling. Do yourself a favour and ask a PCS Coach to familiarise you with any new type to your logbook.*

The training required for a Private Pilot Licence provides the foundation upon which to build your experience and knowledge, and is the minimum level required to operate safely. It's also directly after the completion of their training that a pilot is at their most knowledgeable. And they are usually still within the club environment and being monitored by the Chief Flying Instructor (CFI).

If you ask yourself how you can continue to make it safer for you and your passengers, you soon realise that the pathway to developing your flying is to enhance your knowledge and understanding of the aircraft and the environment in which you operate. This is not just about hours, but also about taking the time to understand how and why things function the way they do.

As an aircraft owner and operator, the onus on you is somewhat greater, but so are the rewards. Maintaining an aircraft under the supervision of an LAA inspector will help you to understand the how and why, which in turn will lead to you being a better and safer pilot because if you do have a failure of some kind, you will understand the implications that the failure has for you, the pilot.

Pilot Coaching Scheme

Affordable flying is only a small part of what is available to pilots who join the LAA. The Association and its members' enjoyment of flying – and our ability to share that with others – carries with it the responsibility to maintain good standards of flying and airmanship, and our Pilot Coaching Scheme (PCS) provides coaches to assist you not only with specific courses, but with any general questions and training needs.

PCS coaches are selected for their instructing experience on a wide variety of LAA types and can offer their wisdom on various aspects of owning and operating LAA aircraft. Our courses are kept informal and friendly, with an emphasis on developing skills, judgement and airmanship.

Courses available

The courses currently on offer have been designed to fulfil the needs of most of our members, and include type conversion, tailwheel conversion, differences training, strip flying, general flying, and biennial reviews.

Should you desire training in a particular skill or area, then the Pilot Coaching Scheme will be able to help. However experienced you are, you will benefit from refresher training such as stalling, practice forced landings, and crosswinds. These are just some of the exercises run by PCS coaches to build confidence and competence.

Our most popular courses are type conversion training and tailwheel conversions, since members who have just purchased an LAA aircraft, or have just completed building an aircraft, will generally require some form of instruction. Gaining confidence in your new aircraft under the guidance of an instructor is an important part of your training, and should not be undervalued. If you are also converting onto a tailwheel, then getting into the swing of things while finding your feet is all part of the enjoyment and challenge of learning.

Aerobatics and display flying

The LAA has also developed a number of courses which we hope will help you to enjoy your aircraft even more. Selected LAA Coaches are also CAA-authorised Display Authorisation Evaluators (DAEs) and are available to coach those who are interested in aerobatics and displaying vintage and amateur-built aircraft.

Whether you want tuition in basic aerobatics or more advanced tuition leading to the issue of a CAA Display Authorisation, contact us for details of your nearest LAA coach.

The sky's the limit!

The LAA's Pilot Coaching Scheme can provide you with new skills, improve your flying and set you on the path to becoming a better and safer pilot

Why use the PCS?

All PCS coaches are CAA-rated Flight Instructors or Class Rating Instructors, and 'R' Examiners. This means that all coaches can help you to complete your biennial review, offer our range of specific courses, and give general practice and revision.

Coaching is available to all LAA members and in any aircraft, whether C of A, Permit to Fly or microlight. Coaches in the PCS are also all LAA members, and have experience on a wide range of vintage and modern types.

Here's a resource that you can use to really benefit from their knowledge and experience at minimal cost. If you would like more information about the Pilot Coaching Scheme, or are considering the partial or full purchase of an aircraft, then contact your local LAA coach for a friendly and informal chat – our advice is free! Full details of the PCS and what it has to offer can be found on the LAA website (*www.laa.uk.com*).

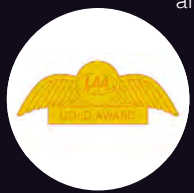
There is no LAA charge for the scheme, leaving it for you to arrange an agreed fee directly with your LAA coach.

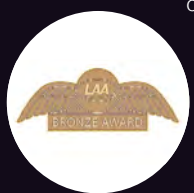
You arrange a mutually agreeable time and location for your training and, being Britain, you hope that the weather will turn out to be suitable!

LAA Wings

Given the fact that military pilots have worn the 'wings' brevet since it was awarded to the Royal Flying Corps in 1913, and that it has been part of every airline pilot's uniform for decades, it is perhaps not surprising that the LAA also offers a Wings scheme to recognise your flying ability.

The scheme, which is open to any pilot and is free for LAA members (non-members are charged £15 to cover the cost of the badge and administration).





The LAA Wings scheme offers both the chance to receive recognition for the flying you have already done, and encourages you to upgrade your skills and knowledge either with the help of Pilot Coaching Scheme coaches, other LAA members, or your local flying instructors.

Bronze, Silver or Gold LAA Wings are up for grabs and it is relatively easy to get onto that first Bronze step of the ladder. If you have 100 hours of flight time (50 hours PIC), have attended an approved Flight Safety event and have carried out a flight of at least 200 miles with two intermediate stops, then you can apply immediately for your Bronze wings. More experience and higher achievements will enable you to move on to Silver – and ultimately those coveted Gold wings.

Open to all

Whether you are an LAA member or not, all you have to do is to download and complete a simple application form and present it and with supporting evidence, such as your logbook, to an LAA Coach, LAA Strut co-ordinator or a CFI at your local registered facility or approved training school, then send it on to LAA Head Office. The fact that the LAA Wings can be verified by the CFI of your local flying school is important, because it opens the scheme not just to non-members, but to people who are not aircraft owners.

Regardless of what you fly, the LAA is dedicated to promoting safe, affordable and fun flying, and the LAA Wings scheme has the potential to help flying schools keep newly qualified PPLs interested and engaged, and learning – not to mention keeping their training fleet better utilised by qualified PPLs.

Check out the dedicated website at *www.laawings.co.uk*.

Have fun and fly safely! ***LAA***

Friendship and knowledge

Brian Hope explains how you can visit or join one of the LAA's regional groups, each with its own local flavour and wealth of friendship and knowledge

Main A Wessex Strut fly-in at Henstridge in Somerset, draws a good selection of LAA types.

Becoming a member of an LAA regional group, or Strut, can offer new flying opportunities, great friendships and a wealth of knowledge to draw on. And with Struts throughout the UK, there's never been a better time to get involved.

Some years after the Association was formed in 1946, a number of members living in Sussex decided that it would be a benefit to members if they met as a local group once a month, and thus the very first regional group was formed – the Southern Strut ('Strut' because it supported local members and the Association itself, just as a wing strut supports a wing). Formally recognised by the Association, the idea of regional Struts was promoted nationwide.

Struts around the UK

Today, there are around 26 Struts dotted throughout the UK, from Devon in the South West to the Highlands & Islands Strut in the very north of Scotland. We even have a new Continental Strut, the first outside of the UK, which is based in Belgium. In recent times, there has been a move by some to retract from the word Strut because they feel it is somewhat old-fashioned, but all but four have retained what is now a rather nostalgic term, and part of the Association's history.

A flavour of their own

It's true to say that no two Struts are the same. Devon for instance is a very large and active group of over 200 members, whilst Bedford & Chilton is a more informal group of perhaps a couple of dozen people. What they all do is meet on a monthly basis, either to listen to an interesting speaker, or simply to catch up with old friends for a pint and a natter about aeroplanes. Some do suspend monthly meetings during the summer though, so if you intend visiting a Strut it is best to call the co-ordinator first to ensure they do in fact have a meeting scheduled.

The larger Struts are generally more active and organise fly-ins and fly-outs, assist in youth activities like Scout Aviation Camps, and hold social activities such as visits to museums, Christmas parties, etc. Some also help the Association at major events; Andover Strut, for example, runs the campsite at the LAA Rally each year, while the Wiltshire Flyers organise and man the Homebuilders Centre.

Above Gloster Strut members enjoy lunch on a fly-out to Le Touquet, in France.

Expertise and knowledge

One major attribute of every Strut is the wealth of knowledge and advice available from its members. Any member new to the Association who is thinking of building or buying an LAA aircraft can do no better than seek the advice of those who have gone before, and local Strut members will be able to answer all those niggling questions. They will almost certainly also know where you can get awkward jobs carried out locally, and even who might have some hangar space available.

Type Clubs

The LAA also has a considerable number of Type Clubs as affiliate members. These clubs have expertise in specific aircraft types and often arrange flying activities that are open to all flyers, not just their own members. ***LAA***

■ You can find details of your nearest Strut and a list of affiliated Type Clubs on the LAA website at *www.laa.uk.com*