The official magazine of the Aircraft Owner and Pilots Association www.aopa.co.uk

AOPA UK

IMC WITH A VENGEANCE
David Hastings battles rough weather and enjoys one of his greatest flying experiences

TRY BEFORE YOU BUY
The importance of pre-purchase inspections when buying a used aeroplane

THE LATEST FROM EASA
Nick Wilcock cuts through miles of red tape to explain the latest licensing rules

Diamond's in the sky

The latest twin-engine from Diamond had a lot of detractors – we find out how it's proving them wrong

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ONCE AGAIN A GREAT SHOW

AOPA had a spacious marquee at the recent AeroExpo UK 2018 held at Wycombe Air Park, thanks to invaluable sponsorship from Jeppesen, manned by staff and several board members throughout the three days. We were kept continually busy with AOPA members and guests dropping in for a chat and welcome refreshment. By Friday teatime, I was beginning to lose my voice, having spent all day talking. It was a pleasure to meet members whom AOPA had helped with specific problems, particularly those who had encountered maintenance or engineering problems. The support and praise of the activities undertaken by AOPA was well received, and we promised, as requested, to keep up the good work.

I don't see your name on it. Oh!

Come Saturday, I managed to escape the immediate confines of the marquee and go and have a look round the exhibition. There were, of course, many exciting and interesting aircraft, new and old. But it was the rotary machines that eventually captured my interest. Several visitors to the marquee told me to visit the static display where a Bell 505 Jet Ranger X was parked. You can see why, above!

Being next door to the GASCo stand, I was tempted into doing the pre-flight challenge; this was on a Piper PA28 Warrior. But, having spent much of my professional career concerned with helicopter dynamics, a specific area of design, I could not resist having a go at the other aircraft on offer, namely, a Robinson R22. My sole experience of flying one was on a trial lesson, so it would be interesting to see how successful I could be. The answer was – not brilliant! Mike O'Donoghue, GASCo Chief Executive, Flight Instructor and Examiner on helicopters, showed me all the items I missed. The trickiest fault was the tail-rotor blades being attached back to front on the hub, as, incidentally, was the propeller on the Warrior. But, to discover the fault, you had to turn the tail rotor and correlate with the direction of rotation of the main rotor. Obvious to a helicopter pilot, but not to a fixed wing flier like me.

Heli UK Expo took place concurrently with AeroExpo, and the presence of the helicopters was hard to avoid, due to the sound of competitive flying games taking place on the airfield. These involved various challenging lifting and carrying tasks, requiring skilled and accurate flying. To those watching, it would become clear what a versatile machine the helicopter is. The versatility derives from the extra degree of mechanical complication necessary to drive both rotors and alter the blade pitch angles collectively and cyclically in the case of the main rotor; indeed, in the industry, the machine is said to be, "a triumph of engineering over common sense!".

Although most of our members are owners and pilots of fixed wing aeroplanes, a significant proportion fly a variety of other types of aircraft, including helicopters. Regardless of where one's interest lies, all members can rest assured that we, at AOPA, will continually strive to seek the best for the current and future viability of general aviation. ■

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Padholme Road
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+44 (0)1733 341444
www.fisherprint.co.uk

Articles, photographs and news items from AOPA members and other readers are welcome. Please send to the Editor. Inclusion of material in AOPA Magazine cannot be guaranteed, however, and remains at the discretion of the Editor. Material for consideration for the August issue should be recieved no later than 01 September 2018.

INSIDE THIS MONTH

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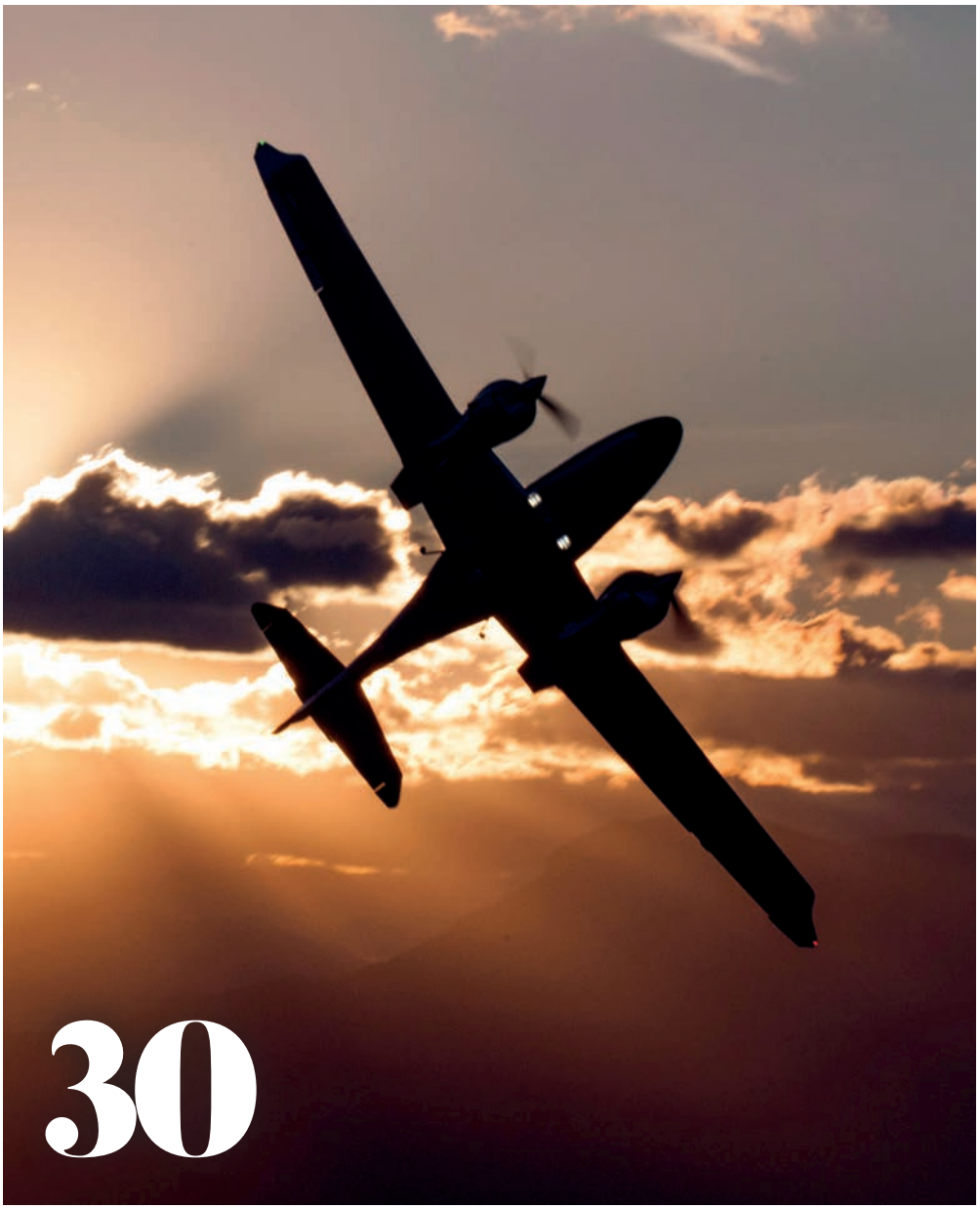
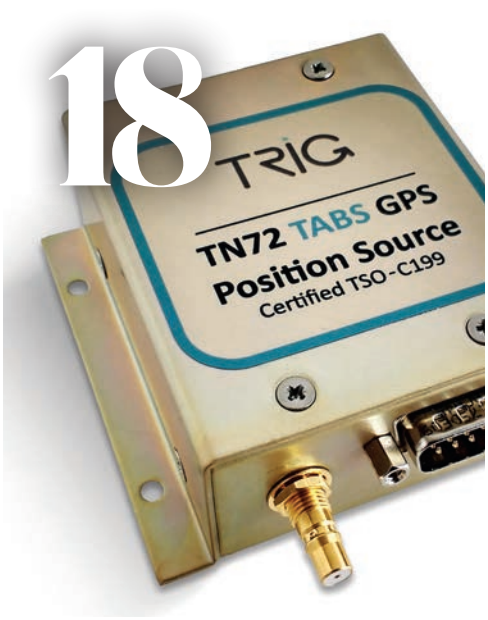
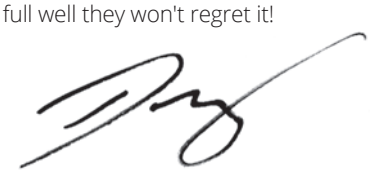




EDITOR'S MOMENT

It lifts my spirits when I hear the familiar sound of a piston aircraft bimbling overhead, and living close to Elstree I've been hearing it quite a lot this summer. I always hope that when I look up it's a PA28, or a C172, piloted by someone taking their first steps into the world of aviation. It's currently show season, and we've been having a summer to remember, not least in terms of the weather, as well as some memorable events so far. With the success of AeroExpo, which George talks about on page 3, and then Farnborough (see Martin's piece on page 7), it's been a busy season, it's all been happening. And as I type this, I'm receiving emails from friends and colleagues over in Oshkosh. This is is definitely shaping up to be a year to remember, but now's the time to grab a friend, put them next to you in the cockpit and encourage them to try flying. Chances are they'll love it. PPL holders aren't on the rise and we need numbers to be able to enjoy the freedoms we have. So if you can, introduce someone to flying – you know full well they won't regret it!



David Rawlings
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FLYING FUN, BUT THE WORK CONTINUES

What fantastic weather we have been having – warm, sunny and dry. A great time to go flying. However the work goes on at AOPA: airspace issues, airprox, airspace issues, airprox, infringements, 833, electronic surveillance, and airspace changes and so on. Brexit is a concern for many members and we are working with government so that when we get information we can provide it to you. Whilst the government has made it clear that it is policy to remain part of EASA, we will have to wait and see what the EU will want in return. The CAA is working on plans for a no deal but has not shared that information with anyone yet! The Prime Minister attended the Farnborough Air Show this week and she said that she wants to keep Britain as a "leading aerospace nation"- this also supports the government's position on the "UK being the best place in the world for GA". AOPA fully supports these statements but we also need the right policies that can help to deliver them. In attending the House of Commons for the APPG summer gathering, as well as the BBGA's Farnborough week, a number of statements were made in relation to GA. Grant Shapps made some interesting comments about the size of GA in comparison to the fishing industry, pointing out that GA needs to be listened to more for many reasons including its links to STEM activities and the commercial aviation sector. The Secretary of State for transport Chris Grayling, in recognition of airspace problems, assured us that GA will still have access. And on aerodromes he spoke about the network of sustainable flying sites but recognised that some may get used for housing. Aviation Minister Baroness Sugg spoke about airspace too and the need to look more closely at its future use. I have to admit that Baroness Sugg has impressed me with her willingness to engage with us.

"AOPA has made it clear that it wants to see that GA has access to this airspace and that it will hold Farnborough and the CAA to account on this"

FARNBOROUGH

Back in Farnborough the PM announced that tthere will be government funding of around £350 million for research, development, and universities. However at the same time there are ongoing issues with our future involvement with Galileo, Europe's GNSS.

The government is looking at the benefits of building its own sat-nav system. It was also announced at Farnborough that an agreement between the Chinese space agency and the UK space agency had been signed. The UK CAA has granted approval to Farnborough to make airspace changes in line with the (CAA's) suggested modifications – AOPA has made it clear that it wants to see that GA has access to this airspace and that it will hold Farnborough and the CAA to account on this. The CAA has introduced some class E airspace and TMZ – AOPA did not support the proposal but now it's going ahead we will be monitoring the access that GA has in the future.

AIRSPACE REJIG

We do need a new airspace policy because it has been predicted in a report to Government that eventually the UK will have 70,000 drone operators. The NATS app *Drone Assist* has had 80,000 downloads, and drones are the big issue for GA. The airspace that they wish to use will impact on GA unless we find a way to integrate – they have some very big and powerful backers and they have no interest in GA's concerns. In my opinion this is the biggest concern GA should have. Whilst there has been a move towards an ADS-B solution based on 1090MHz I have seen EASA studies that predict 100% saturation by 2035 and this is before they include all of the GA fleet! The drones have no intention of using 1090MHz and it's unlikely that AOPA will continue to support the development of ADS-B on 1090 MHz unless we can be assured that the system can exist beyond 2035. The GA unit has also launched a consultation on a future GA strategy 2018-2023. Let me say here and now that this document is not a strategy. The CAA should first consult (they may claim that they are) to determine what you want to do: your strategy. Then decide how: your plan. Then execute. This document is filled with "look at what we have done" and references to the red tape challenge. There is little in the document that leads to a set of well-reasoned goals with a focus on an outcome, ie where we are today and where we want to be tomorrow. Whilst there are issues like airspace that does not fall within the remit of the GAU, there are many issues like the future of AVGAS that needs to be a part of a future strategy. On one hand the CAA support the continued membership of EASA along with its high costs, and on the other, the CAA continues to relax or amend rules (national) for annex 1. For me this is an incompatible set of values given the relevant aircraft types. ■

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HELPING YOU STAY FLYING

Welcome to the AOPA Community section of the magazine, bringing you all the news and insight from the world of AOPA...

WORKING FOR YOU
The MWG keeping you flying

AIRFIELDS UPDATE
Airfield news from John Walker

PPL CORNER
Keep an eye on those clouds

ADVICE
Pre-purchase inspections

WORDS Pauline Vahey **IMAGES** Steve Wright

THE AOPA MEMBERS WORKING GROUP KEEPING YOU FLYING

The MWG is visiting airfields around the UK so members can join in. The latest at Earls Colne was a huge success wih the following topics discussed....

Prompted by Robert Hill and with the invitation of the new owner Kevin Barber and his team we all went to Earls Colne for June's Members Working Group. Martin Robinson talked to members of the Anglian Flight Centres Flying Club and School about what AOPA does and has done.

It was a remarkable litany of the successes that AOPA has achieved over the years to allow Private Pilots to enjoy their rights and privileges despite the best efforts of some larger commercial forces. It was an interactive evening with lots of questions and concerns from the attendees.

The following day we had a remarkable attendance for the Members Working Group meeting. AOPA is now plugged into the various Working Groups of the All Party Parliamentary Group for General Aviation and has a great opportunity to input to these groups the views and concerns of its membership. AOPA has always been concerned about keeping Airfields open and John Walker presented his intelligence on the 37 airfields currently on the 'at risk' register from housing development. This also includes a number of MoD airfields that are scheduled to be sold off over the coming years and could usefully become part of a national airfield transportation infrastructure network to keep aviation alive in the UK.

Airspace is always a contentious issue and there are a number of consultations in progress that will soon report. The CAA was asking whether Class D airspace should be converted to Class E? Martin gave a rundown on AOPA's responses to these consultations and also a bigger picture of the future of airspace in the UK. AOPA was looking at innovative solutions and expected ADS-B to provide an infrastructure base for a known environment. Sky Echo trials were ongoing and it was expected that the safety of GA could be improved by the new technologies and interoperable equipment. Drones were touched on as a new airspace class: U class was being proposed for drones in Europe. A more flexible approach to the use of airspace was being considered by NATS, including constant descent approach and climb-out to limit emissions and offer cost savings for airlines. This meant the profiles of airspace changing and the potential for freeing up airspace for GA.

"AOPA is now plugged into the various Working Groups of the All Party Parliamentary Group for General Aviation and has a great opportunity"

Nick Wilcock updated all about his progress with Flight Crew Licensing and his work at EASA. It's incredibly detailed – nothing escapes Nick's attention.

We then enjoyed a very welcome lunch from Norm. We'd also like to thank Victoria at East Anglian Flight Centres who made everything happen and the Essex and Herts Air Ambulance Service for the use of their training room – the tin was suitably shaken and donations made to say thanks.

Where to next year? ■

Earls Colne airifeld where the latest Members Working Group meeting was held

WORDS George Done

2018 AOPA ANNUAL GENERAL MEETING

The 52nd Annual General Meeting of the British Light Aviation Centre Ltd, trading as the Aircraft Owners and Pilots Association of the UK, will be held on Friday 7 September 2018 at AOPA, 50a Cambridge Street, London, SW1V 4QQ, commencing at 2.00 p.m. The formal announcement and agenda of the AGM appears below.

A set of the financial accounts for the year ended 31 March 2018 will be provided in advance of the meeting on the AOPA website www.aopa.co.uk together with the minutes of the 51st AGM, and brief personal details of the members offering themselves for election and re-election. These data will also be available at the AGM.

Any member wishing to elect another member to the Board of Management must provide notice in writing or email to the AOPA office at least 10 days in advance. A statement of willingness to serve will be expected from the proposed member together with appropriate personal details. Proxy voting is permitted, either by nominating in writing, or by email, a member who will be present at the AGM as proxy, or by nominating the Chairman as proxy.

Following the formal business of the meeting, there will be time for informal reports from the Chairman and CEO and for general discussion.

Tea, coffee and sandwiches will be available for those attending from 1.30 p.m. and it is expected that the meeting will finish by 3.30 p.m. It is very important for planning purposes that members who intend to attend are requested to please let the AOPA office know in advance, either by telephone (020 7834 5631), email (info@aopa.co.uk), or by post to AOPA, 50a Cambridge Street, London SW1V 4QQ.

"It will be held on Friday 7 September 2018 at AOPA, 50a Cambridge Street, London SW1V 4QQ"

The 52nd Annual General Meeting of the British Light Aviation Centre Limited trading as the Aircraft Owners and Pilots Association of UK will be held at AOPA 50a Cambridge Street, London, SW1V 4QQ on Friday 7 September 2018 at 2.00 p.m.

AGENDA

1. Apologies for absence.

2.To confirm the Minutes from the 51st Annual General Meeting.

3.To receive and endorse the Directors' Report and Financial Statements for the year ended 31 March 2018.

4.The election of Directors to the Board of Management. The following Directors are due to retire by rotation: Mike Cross, Mick Elborn, Charles Henry and Nick Wilcock. Mike Cross, Mick Elborn, Charles Henry and Nick Wilcock offer themselves for re-election.

5. To appoint as Auditors Messrs Waller & Byford, at a fee to be fixed by the Board of Management.

6.To conduct any other business that may properly be dealt with at an Annual General Meeting. ■

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WORDS John Walker **IMAGES** Wyrdlight

ALL THE LATEST NEWS ON UK AIRFIELDS

John Walker shares his latest findings on the developments of the UK's aerodromes

There are airfields across the UK currently under the threat of closure. Here are the latest developments, updated 3 July 2018.

AYLESBURY/THAME (HADDENHAM)

Resident Upward Bound Trust Gliding Club given notice to quit; technical site adjoining landing/take-off area earmarked in Aylesbury Vale District Council definitive Local Plan for development.

ELVINGTON

York City Council definitive Local Plan submitted for Public Examination on 25 May 2018 includes a development of up to 3,330 homes occupying the middle section of the aerodrome runway.

COTSWOLD AIRPORT

Commercial Estates Group proposal to build a 2,000-home sustainable village on this 'brownfield' site as an alternative to the Cotswold District Local plan proposal for a greenfield site near Cirencester. The Definitive Local Plan has been through Public Examination and the Planning Inspector's report, endorsing continued aviation use of the site was issued on 5 June 2018.

OLD SARUM

Site owner's planning application for housing development and 10 additional hangars amongst other work, objected to by various parties as being detrimental to the site's heritage and potentially limiting use of the aerodrome. Appeal made by owner to the Planning Inspectorate for non-determination of the application by Wiltshire Council with public inquiry hearings starting on 9 October 2018. The Council rejected the planning application.

"Definitive Local Plan has been through Public Examination and the Planning Inspector's report, endorsing continued aviation use"

DEENETHORPE

Site accepted under the Government's Garden Village scheme for a development with up to 1,500 homes. The development is supported by the Brudenell Estate, the site owner. Public consultations on a proposed site masterplan commenced in March 2018, prior to a planning application expected to be made in Summer 2018.

PANSHANGER

Welwyn Hatfield Borough Council definitive Local Plan provides for a realigned grass runway to the north of previous runway 11/29. Definitive Local Plan subject to Public Examination with specific hearings on the aerodrome taking place on 27 June 2018.

An outline planning application to re-open the aerodrome has been submitted and another party has submitted two separate applications to establish a replacement aerodrome at either Hatfield or Cromer Hyde.

WYCOMBE AIR PARK

Site lease holder (Helicopter Aircraft Holdings Ltd) has agreed new leases with the land owner, Wycombe District Council. Definitive Local Plan submitted for Public Examination provides for an industrial/warehousing complex on south-eastern part of the site resulting in loss of a runway and relocation of gliding activities. Public Examination hearings due to start on 16 July 2018. ■

Wycombe Air Park, home of the UK's Aero Expo and a popular location

WORDS Adam Winter, Commercial Pilot and Instructor

CONFUSED BY LAPSE RATE? NOT ANY MORE

Adam Winter explains Environmental Lapse Rate, the Dry Adiabatic Lapse Rate, the Saturated Adiabatic Lapse Rate and the International Standard Lapse Rate

In the last article we looked at the exchanges of energy involved when water changes state. The energy for these state changes comes from the sun.

Without going into numbers, energy from the sun hits the Earth at such a staggering rate that if it were all converted to heat we simply wouldn't be here. I sat at the base of one of the falls at Victoria Falls once in Zambia and remember pondering not so much the huge amount of water falling, but how it got up there in the first place in order to fall. This is definitely one way that the energy exchange is quelled in the atmosphere. Wind and storms have the same effect, and if there is too much of an energy build up in the atmosphere, hurricanes and cyclones also help to dissipate it.

Meteorologists describe the atmosphere as stable or unstable. The stability of the atmosphere and the amount of water it contains determines the type and amount of cloud that can be expected. In this article I hope to explain these conditions and some of the terminology you will come across doing your PPL met exam.

The International Standard Atmosphere (ISA) temperature is 15°C. This means that the average global temperature is 15°C, so it could be 40°C in the desert and -10°C somewhere else and there is your 15°C standard. The ISA standard atmospheric lapse rate is 1.98°C. This means that the average drop in temperature with an increase of 1000ft in height across the globe is 1.98°C. It is nothing to do with air being forced upwards, but mainly to do with getting away from the source of heat, namely sunlight hitting the ground.

"DALR is the temperature decrease with an increase in height if air is forced upwards"

ELR AND DALR

The Environmental Lapse Rate (ELR), is as advertised. It is the actual temperature lapse rate in the environment. If you were to climb a ladder and take a measurement every thousand feet, that is a measure of the ELR. Read your OAT probe every thousand feet, and that is the ELR. The actual drop in temperature with altitude, along with the moisture content of the air is what will determine the stability of the atmosphere; a bit more on that later, but note for now that we are merely making a passive observation of temperature decrease with altitude, we are not forcing air upward or down.

The Dry Adiabatic Lapse Rate (DALR) is the temperature decrease with an increase in altitude if air is forced upwards. As height increases, the pressure decreases. If we force air upwards and the surrounding pressure decreases, the air expands and occupies more space. This means the energetic gas molecules have more room to manoeuvre, and so they slow down and have fewer collisions with their neighbours. This reduction in energy is what we feel as cooling. It is the same physics as when we let air out of a tyre. It gets colder. The DALR is 3°C/1000 feet. So if we force air upwards by say putting a mountain in its way, as the air ascends and expands it cools at 3°C/1000 feet. Equally

Aviation meteorology is fundamental to navigating our complex atmosphere

if dry air sinks, it warms at the same rate (look up the Foehn effect).

Now things are warming up, literally with the Saturated Adiabatic Lapse Rate (SALR). Once air is saturated (100% humidity), it can't hold any more moisture. If saturated air is cooled, the water vapour held within it condenses. As this change of state from gas/vapour to liquid occurs, the bonding of molecules releases some of the heat energy that was absorbed during the evaporation process. So much energy is released that the lapse rate changes from 3°C/1000 feet to 1.5°C/1000 feet. Let me clarify here that a cloud contains water in its liquid state. Each droplet is tiny, 10-15 microns in diameter (10-15/1000 of one mm), but water nonetheless, not vapour. These droplets of water contain trillions of water molecules and are neutrally charged, so don't coalesce. Air that is forced upwards cools. While it is unsaturated, it cools at 3°C/1000 feet, and once it has cooled below its dew point it cools at 1.5°C. The thing that causes it to rise (the trigger) can be a mountain or other orographic feature. It can be forced upwards by surface heating or thermal uplifting, or it could be a cold or warm front forcing it upwards. What happens once it has been forced upwards? It is the temperature of the surrounding air (the ELR!) and its moisture content that determines its stability and what happens next.

I like to imagine a parcel of unstable air like a bubble in water. The bubble will always be less dense than the water, and will always rise to the top, and will always be unstable. The parcel of air, like the bubble, will continue to rise and expand once triggered as long as the air surrounding it is more dense. If the air around it is less dense, once the trigger action is removed (over the top of the mountain) it will sink back down again, and the air is stable. If the trigger action is removed and the parcel is the same temperature as its surroundings, it will stay where it is, and the atmosphere can be described as neutrally stable. If cloud forms in an unstable atmosphere, it will be cumuliform. If it forms in a stable atmosphere is is likely to be stratiform, or layered.

An unstable atmosphere exists if the ELR is steep, or there is a large decrease in temperature with increase in height along with a high moisture content in the air. The temperature and dew point will be close together. A trigger action forces a moist parcel or bubble of air upwards. Initially the parcel and its surroundings are at the the same temperature, let's say 17°C, and the dew point is 14°C. The ELR, the actual temperature lapse rate of the air is say 3°C. At a thousand feet, the air that was forced upwards has cooled adiabatically (adiabatic is a term used in physics to describe a process without loss or gain of energy (heat) from its surroundings) and its temperature will be 14°C. The air in the environment around it will also be 14°C. So neutral stability for the first thousand feet. Now, however, if the air continues to be forced upwards, it has reached its dew point, and will cool at the lesser rate of 1.5°C because of the latent energy of evaporation being released. At 2000 feet, the surrounding air is 11°C, but the air that was forced upwards is now at 12.5°C. It is warmer, and so even if the trigger action is removed, it will continue to rise, and as it does so it will expand more, drawing in more moist air to condense and release more energy still. It is literally a slow water bomb and it will keep going until the temperature in the environment stabilises or rises, and that is usually at the tropopause.

In the next issue we will look at the anatomy of a thunderstorm, whose energy release is much, much greater than that of a nuclear bomb. ■

WORDS George Done (with help from the Maintenance Working Group) **IMAGES** courtesy of TLAC

PRE-PURCHASE INSPECTIONS – A MUST

Buying a used aircraft is a big decision – follow this pre-purchase inspections information and you can't go wrong

AOPA is occasionally contacted by members who have recently purchased an aircraft, only to discover later unexpectedly that a serious engineering problem has come to light that requires significant expense to restore the aircraft back to full airworthiness.

Although relatively uncommon, what happens, typically, is that the new owner's chosen maintainer, when inspecting the aircraft at its first check, discovers previously hidden problems that may cost a great deal of money to resolve, even representing a significant proportion of the purchase cost. For example, unrecorded substandard remedial structural work might be found that covers up damage from a past accident, or that important airworthiness directives have been overlooked. There is then a hiatus, during which, typically, AOPA is consulted, whilst the owner debates what to do; whether to seek recompense through legal action or take the plunge and find the necessary extra funds to get the aircraft back in the air.

The avoidance of such aggravation is why it is a good idea to organise a pre-purchase inspection of an aircraft. In any case, it can be a valuable tool in negotiation of the price with the vendor. Many, although not all, aircraft engineers are willing to survey an aircraft prior to purchase, but some thought should be given as to whom to approach. If you are already on good terms with a maintenance organisation, the initial choice is obvious. Geographical considerations may be important and if your prospective aircraft type is ubiquitous, such as the Cessna 172 or Piper PA 28, then an engineer/maintenance organisation nearer to where the aircraft is situated might be better. For less common aircraft, the best strategy can be to search for an organisation that specialises in maintaining that particular aircraft type as they are more likely to be familiar with potential maintenance/engineering problems. It is also worth checking if there is an owners' group that can provide useful information, such as the Vintage Piper Aircraft Group.

"It is a good idea to organise a pre-purchase inspection. In any case, it can be a valuable tool in negotiation of the price with the vendor"

A pre-purchase inspection will take the worry out of buying a pre-loved aeroplane

Finding a licensed engineer is not essential, as many unlicensed engineers employed in maintenance organisations have a wealth of experience. The aircraft and engine logbooks need to be made available to your engineer because he or she will be able to tell you a lot about the aircraft simply from its recorded history. It will be checked that all the normally expected maintenance has been carried out, including anything required by the ADs and SBs (Airworthiness Directives and Service Bulletins). If you are lucky, all the logbooks going back to the date of manufacture may still available, but if the aircraft is an Annex I type that has been maintained by a CAMO, then longevity of logbook records is not so important. For Annex II types, and particularly if the aircraft is a recent import into the UK, more caution may be necessary.

Well documented records can provide solid evidence

The inspection will unveil what might have been hidden...

Without an inspection you could be looking at a costly purchase

that the aircraft is thoroughly airworthy, and also provide the flight hours available before future major maintenance work becomes necessary. This removes a degree of dependence on your engineer's physical inspection, which, in any case, can only rely on what can be viewed externally, or seen via inspection panels. The inspection can therefore only be relatively superficial; it cannot delve as deeply into the innards of the aircraft as is required for an annual check, for example. So don't be surprised if the engineer's report contains some caveats – no different from a surveyor's report when buying a house.

How much will it cost? As well as covering travel and subsistence expenses, there will be a fee for the engineer's expert opinion, maybe £250 - £500. Twin–engine aircraft, and aircraft with retractable gear, de-icing, variable pitch propeller, etc. will inevitably cost more than some simpler types. If asked, your engineer should be able to suggest approximate costs of potential expensive remedial work such as engine overhaul if nearing the TBO (£20k including ancilliaries, plus or minus). Other items may be a new paint job (c. £6,000), renewal of the interior upholstery (c. £2,000), and improved avionics fit, e.g. 8.33 kHz radio (prices dependent on what is necessary). All the above affects the aircraft value, and helps establish a reasonable purchase price that can be negotiated with the vendor. However, if your engineer recommends that you avoid purchasing the aircraft altogether, and this might be a verbal recommendation only, you would be wise to heed his or her advice, even though that advice has cost you money, and start looking elswhere. ■

AOPA FLYING INSTRUCTORS REFRESHER SEMINARS

For revalidation of an FI certificate, the holder shall fulfil two of the following three requirements:

1 At least 50 hours of flight instruction during certificate validity as FI, TRI, CTI, IRI, MI or Examiner;
2 Attend a Flight Instructor Refresher Seminar within the validity of the certificate; and
3 Pass an Assessement of Competence within the 12 months preceding the expiry of the certificate.

For at least each alternate subsequent revalidation, an assessment of competence must be undertaken. In the case of a renewal you should, within 12 months before renewal, attend a Flight Instructor Refresher Seminar and pass an assessment of competence.

NEXT DATES

The next two dates for the seminars are **8-9 JANUARY** and **14-15 MAY 2019**.

All seminars are now run at the AOPA offices at 50a Cambridge Street, London SW1V 4QQ – only 5 minutes' walk from Victoria Station.

To register for a place on any of the seminars please call the AOPA office on 020 7834 5631 or join online at WWW.AOPA.CO.UK.
The seminars start at 1100 and end at 1800 each day to facilitate travel.

AOPA NEWS

General Aviation news from around the world

Farnborough is doing its bit for the environment

FARNBOROUGH GOES CARBON NEUTRAL

The airport proves it is serious about the environment

by **David Rawlings**

TAG Farnborough Airport has been awarded carbon neutral status – the first business aviation airport in the world to achieve this under Airport Carbon Accreditation run by Airports Council International Europe (ACI EUROPE). To achieve carbon neutral status, an airport must have mapped its carbon emissions, reduced CO^2 emissions under its direct control, engaged with others on the airport site to reduce their emissions, and invested in responsible and credible programmes to offset residual carbon emissions.

Over the past decade, TAG Farnborough Airport has reduced carbon emissions over which it has direct control, by 42 per cent, or 2,183 tonnes – down from 5,242 tonnes of carbon emissions in 2008. And over the past five years alone, it has invested over £1 million into energy efficiency projects.

"As a world-class facility, TAG Farnborough Airport is committed to responsible and sustainable development through comprehensive management of our environmental impact. Whilst carbon neutrality is without a doubt an important milestone in our carbon reduction efforts, our work in this field by no means ends here and we will continue to identify new and innovative ways to improve our sustainable credentials," said Miles Thomas, Environment Manager TAG Farnborough Airport.

Olivier Jankovec, Director General, ACI EUROPE, said, "We firmly believe that every aspect of aviation needs to try to address its carbon footprint, and business aviation is no exception. As the first carbon neutral business aviation airport in the world, the team at TAG Farnborough Airport are pioneers in this regard, having engaged in ever-greater efforts in sustainability over the past years, allowing them to rise through the levels of the Airport Carbon Accreditation programme to reach their ultimate goal today. I congratulate them on setting what we hope will become a trend among other business aviation airports that are inspired by their example."

Attaining carbon neutral status is the culmination of over a decade's work by TAG Farnborough Airport's environmental team, headed by Miles Thomas. A host of projects with a focus on energy efficiency, staff accountability and awareness training, driven by the airport's ISO14001 certification, have been key contributory factors in achieving carbon neutrality. ■

TEXTRON EXPANDS UK BASE

by **Lucy Field**

Textron announced it has expanded its London presence with a line-maintenance station at London Biggin Hill Airport, further enhancing accessibility to factory-direct service and support for Citation, King Air and Hawker customers operating throughout Europe.

The Biggin Hill station opened earlier this month, making the expertise of Textron Aviation more accessible and convenient for business aviation operators who rely on London.

"In 2012, we committed to the European market to grow our service and support in the region. And five years later, we've delivered on that commitment," said Kriya Shortt, Senior Vice President, Customer Service. "Our expansion efforts in Europe have been driven by feedback from our customers within the region. We have made great strides to increase accessibility to factory-direct service and support, as well as to parts inventory through the parts distribution centre in Düsseldorf. The combination of these investments is yielding significant rewards for Textron Aviation customers in Europe."

The addition of the Biggin Hill line-maintenance station is the latest expansion by Textron Aviation to bring factory-direct service and support to customers in Europe. Since 2012, the company has grown its support footprint in Europe to include six company-owned service centres, six line-maintenance stations and a team of more than 400 Textron Aviation staff, including engineers, service technicians and field service representatives.

Furthermore, as part of the company's global parts distribution strategy, it established its European Parts Distribution Center in Düsseldorf, Germany. With a diverse inventory of more than 225,000 parts, the centralised facility allows for expedited parts deliveries throughout the region, maximising operational availability for customers operating within Europe.

"With flight activity continuing to increase in Europe, we are poised to support our customers operating throughout the region," said Shortt. "And as we continue to see the market improve, we are committed to further strengthening our support network in Europe and around the world." ■

PC-24 JET MAKES ITS FIRST ROUGH STRIP LANDING

by **Robert Care**

The PC-24 made its first landing on an unpaved runway. The Super Versatile Jet is currently undergoing a programme of post-certification tests with special emphasis on unpaved runway operations. Pilatus plans on obtaining "Rough Field" certification in the fourth quarter of 2018.

Woodbridge Airfield to the north east of London offers optimum test conditions: Pilatus spent two weeks there testing the PC-24's landing and take-off capabilities on the unpaved runway.

From the outset, the PC-24 was designed for "off road" operations. Its outstanding performance on short unpaved runways opens up an incredible degree of flexibility and new opportunities. The PC-24 provides access to almost twice as many airports worldwide compared with other jets on the market.

Touch down! The PC-24 makes its first rough strip landing

Oscar J. Schwenk, Chairman of Pilatus, is delighted: "What a picture – the PC-24 in the toughest conditions, using an unpaved runway for the first time! This sort of mission would not be conceivable without the PC-24's rugged landing gear, clever flap systems and special wing design. The PC-24 was designed with exactly this sort of operation in mind – it's clearly Swiss engineering at its very best." ■

LOOK BACK... THIS MONTH 88 YEARS AGO

NEIL ARMSTRONG WAS BORN

Arguably the world's most famous aviator, Neil Armstrong was born on 5 August 1930.

A graduate of Purdue University, Armstrong studied aeronautical engineering, with his college tuition paid for by the U.S. Navy under the Holloway Plan. He became a midshipman in 1949, and a naval aviator the following year. He saw action in the Korean War, flying the Grumman F9F Panther from the aircraft carrier USS Essex. Armstrong joined the NASA Astronaut Corps in the second group, which was selected in 1962. He made his first spaceflight as commander of Gemini 8 in March 1966, becoming NASA's first civilian astronaut to fly in space.

In July 1969, Armstrong and Apollo 11 Lunar Module pilot Buzz Aldrin performed the first manned Moon landing, and spent two and a half hours outside the spacecraft while Michael Collins remained in lunar orbit in the Command/Service Module.

On 25 August 2012, Armstrong developed complications after a bypass and died in Cincinnati, Ohio, aged 82.

AOPA NEWS HIGHLIGHTS

JAIL BREAK PAIN

A French helicopter pilot who was beaten and then forced at gunpoint to help pluck a convicted bank robber from a prison said the worst part about the ordeal was watching the vintage helicopter he was flying go up in smoke. Stéphane Buy, 65, was approached by two men. He was soon hovering the 1950s Alouette helicopter over the courtyard of the Réau prison south of Paris. After the prisoner was extracted, Buy was told to land, and his helicopter was set ablaze.

THREE SOLOS IN A DAY

Cambridge Aero Club was cutting shirt tails off left, right and centre when they accomplished three solos in one day.
One solo at a club is something to shout about – but three is a cause for for a huge celebration!
So congratulations to the three pilots-to-be: Jack James, Giorgio Manganiello and Sarah Glover, who all flew solo on 26 June. Now on to getting that PPL!

ICON KNOCKOFF FLIES

An amphibious Chinese-designed and manufactured LSA, which looks identical to the Icon A5, successfully made its maiden voyage earlier this month, according to new agency reports in China. The all-composite two-seat M-2 Skywave is built by Oxai Aircraft. Oxai Aircraft has so far received 75 orders from global clients, with a value of nearly 200 million yuan, from nations including the United States, Australia, Finland, and Canada.

Some exciting developments for 2018 at Shuttleworth

SHUTTLEWORTH OFFERING A LITTLE EXTRA

New additions to the collection will be flying this year

by **Lucy Field**

The Shuttleworth Collection is well known as a world-class venue for airshows focused mainly on vintage aircraft. Visitors get to see many of these aircraft on static display throughout the whole year. But on six Sundays and four Saturdays a year the skies over Old Warden aerodrome are filled with the sights and sounds of vintage aircraft in flight – a truly memorable experience.
The three Sunday shows in August, September, and October offer different experiences: The Shuttleworth Family airshow in August is noise, aerobatics, and thrills for those who are looking for a day out that the whole family can enjoy. September's Heritage Day is very much about Shuttleworth, its collection, including the Clayton & Shuttleworth exhibits. The Season Finale, Race Day, brings together Richard Shuttleworth's two passions – air racing and motor racing!

Shuttleworth is a lovely intimate venue, where everything is no more than a 10-minute walk no matter what part of the site you're on. On airshow days the Swiss Garden and The House (Sunday shows and Flying Proms only) are included in the ticket price, as is the children's Play Area (suitable for up to 12 years).

The Swiss Garden has 13 listed structures, including the grotto & fernery, which resembles an underground cave leading into a glass dome area. Definitely worth a look! The House is a very popular wedding venue. It also offers conferencing, but where Shuttleworth excels is in the ability to offer private venue hire across the site. Previous events have included a Bremont watch launch with its own mini-airshow, and a large closed-site corporate event that featured an airshow, live music, and a funfair.

On non-event days Shuttleworth is one of the few grass runway airfields with a very good restaurant and gift shop, no landing fees, and pay-as-you-go fuel pumps. Recent additions to The Collection's aircraft have been the Hawk Speed Six, and the return of Spitfire AR501 to airworthy condition and display programme. The Hawk Speed Six will make its display debut this season.

All information on upcoming events and for those wanting to know how to fly into Shuttleworth, including PPR and airfield details, can be found on: www.shuttleworth.org/airfield-info. ■

COUNCIL BEGINS COMPULSORY PURCHASE ORDER FOR WELLESBOURNE

by **Lucy Field**

Stratford-on-Avon District Council has written to Mr M Littler – an owner of the Wellesbourne site – to inform him of its intention to commence negotiations with Littler Investments Limited, with a view to purchasing and protecting Wellesbourne Airfield as a working airfield.

This is the first stage of the Compulsory Purchase Order (CPO) process and gives Littler Investments Limited the opportunity to engage with the District Council, with a view to a voluntary sale of the site. It has until Wednesday 11 July to respond, and if there is no engagement with the District Council, then CPO proceedings will commence.

Cllr Tony Jefferson, Leader of Stratford-on-Avon District Council, says: "Wellesbourne Airfield is an important facility within Stratford-on-Avon District. There is a clear policy position under the District Council's adopted Core Strategy 2011-2031 that the site be preserved for aviation purposes. The actions of Littler Investments Limited in terminating the leases of businesses operating on the site; wishing to demolish existing buildings on the site and the agreements with Gladman Developments Limited are all in direct opposition to this policy position. The District Council has now decided to use its Compulsory Purchase Order powers in order to maintain the current planning use of the site."

The District Council has also requested that the businesses on site be given temporary tenancies to preserve the livelihood of the 100 employees (44 full-time and 60 part-time).

Martin Robinson, CEO of AOPA UK, says: "AOPA is supportive of the Compulsory Purchase Order at Wellsbourne Airfield which will protect a vital part of the General Aviation infrastructure as well as over 100 jobs locally." ■

Things look to be good for Wellesbourne

NORWEGIAN AMPHIBIAN TAKES TO THE SKIES

by **Robert Care**

The team behind Equator Aircraft in Norway recently confirmed that it achieved its first fully balanced flight with the P2 Xcursion prototype aircraft at Eggemoen Technology Park in Norway.

Piloted by Test Pilot Eskil Amdal, and followed on the ground by Equator personnel, the aircraft accelerated to 70kts before calmly leaving the ground and subsequently flying down the runway at 100kts at a maximum of 9m elevation, before it landed.

The flight was reported by Amdal to be stable, with good controllability in all axes. Two subsequent flights were performed the following day, which further established confidence in the flying characteristics. The continuation of the test programme will now be a full flight around the airport, requiring an additional "permit to fly" which has been applied for with the CAA.

The team said it was "a fantastic day, and marks the real beginning of the test programme for the aircraft."

Equator is now looking forward to gaining actual flight data, and to putting the aircraft on the water as soon as possible. "We are thrilled to see the aircraft perform as expected, and can't wait to test the aircraft further. Want to help us develop this exciting aircraft further? Join our equity crowdfunding campaign now," a spokesperson said. ■

The P2 Xcursion took to the skies for the first time

CAA POST BREXIT

by **David Rawlings**

With the recent announcements in the press, the UK's CAA has said it is preparing for the possibility of a no-deal scenario when the UK leaves the European union.

On 7 June 2018, the Government published a series of slides on the *Framework for the future UK-EU partnership* for transport, in which it set out its desire to secure liberal aviation market access arrangements.

The CAA says that through the EU (Withdrawal) Act 2018, the UK will adopt all European aviation laws at the point of exit. Changes will be made to ensure those laws are legally operable. The UK will continue to mirror EU aviation regulations for at least a two-year period. ■

The stalwart of PPL training

FLIGHT DIRECTORY EXTRA

Due to an admin oversight, these Corporate Members were missed off June's Flight Directory, AOPA apologises for any distress caused

by **AOPA News Team**

NORTH WEALD FLIGHT TRAINING
A leading provider of flight training in the South East of England, that has an enviable reputation for airfield facilities, aircraft fleet and experienced instructional staff that all go to help many students realise their dream of flying an aircraft.
Aircraft:
- *C150 (2)*
- *C152 (2)*
- *C172 (4)*
- *PA28 (1)*

GLASGOW FLYING CLUB (GFC)
Located at the north side of Glasgow International Airport, Glasgow Flying Club is ideally placed to provide the facilities for student pilots & LAPL/PPL holders. Glasgow Flying Club offers a full range of services including: LAPL Training, PPL Training, IMC Ratings, Air Experience Flights, Revalidations and Renewals. Aircraft are available for self-hire. Flying from Glasgow International Airport offers both LAPL/PPL pilots & new students the experience of sharing the same runway with large passenger jets, flying within air traffic control zones, and access to services unavailable from smaller airfields.
Registered with the CAA.
Aircraft:
- *Piper Cherokee (1)*
- *Piper Warrior (1)*
- *Piper Archer (1)*
- *Piper Arrow (1)*
- *Cirrus SR-22 (1)*

THE LAPWING FLYING GROUP LTD
First formed in 1965 and now enjoying its 53rd year of continuous operation. It is a small group of very friendly, informal, dedicated aviators who come from a wide range of different backgrounds and many levels of flying experience, ranging from an Airline pilot to basic student, but all sharing a love of flying. The Group currently operates from a small clubhouse at Denham airfield (EGLD).
Aircraft:
- *Piper PA 28 151 Warrior*

DEVON & SOMERSET FLIGHT TRAINING
As well as air experiences, Devon & Somerset Flight Training offers training for the EASA Private Pilot's Licence and the Light Aircraft Pilot's Licence. For those who already have a licence, we offer aircraft hire, night qualification, IR(R) and differences training on complex aircraft and tailwheel aircraft.
Devon & Somerset Flight Training also offers Radio Telephony training to anyone from balloon pilots to our own PPL students.
Aircraft:
- *Cessna 152 (6)*
- *Cessna 172 (3)*
- *Citabria (1)*
- *Piper PA28 Warrior (1)*
- *Piper PA28R Arrow (1)*
- *Beechcraft Duchess (1)*

COTSWOLD AERO CLUB
Based in the heart of the Cotswolds at Gloucestershire Airport with easy access from Cheltenham, Gloucester, Bristol, Bath, Swindon and Worcester, Cotswold Aero Club has the professional yet relaxed attitude for flying and learning to fly, whether it is for training pilots or a trial lesson.
The club offers training for NPPL, LAPL, PPL and associated ratings.
Aircraft:
- *PA28R - 200 Mk II (1)*
- *Robin R2100 (1)*
- *Robin DR400 (2)* ■

The impressive Sonaca 200, now EASA certified

SONACA 200 RECENTLY CERTIFIED BY EASA

by **David Rawlings**

At the end of a three-year procedure, Sonaca Aircraft has just received EASA Type Certificate for the Sonaca 200. Sonaca is a Belgium-based manufacturer and the Sonaca 200 is a low-wing, full metallic aircraft with a maximum take-off weight of 750kg.

Its conventional structure is composed of advanced aluminum-alloy frames, stringers and sheets, which will provide very effective corrosion protection. The wing profile has been designed to optimise performance, while providing extremely stable behaviour at low speeds. As a result of its higher mass (compared with ultra-light aircraft), and its efficient aerodynamic design, the Sonaca 200 exhibits very progressive stall behaviour, which makes it the perfect aircraft for flight schools and safety-conscious pilots.

It is perfectly suited to both basic training and long navigation.

The Certification process has taken three long years for the company. "The Sonaca 200 certification application was filed in August 2015 and the Type Certificate was issued in just under three years after the initial filing. This is an exceptional performance. On behalf of the whole Sonaca Aircraft team, I would like to thank the EASA experts and particularly the DGAC for their advice and support throughout the certification project," said Harold van der Straten, CEO at Sonaca Aircraft.

"The first Sonaca 200 deliveries will take place after the certification. As we had started industrial production several months ago, we will be ready to deliver the first four planes in September 2018 and a dozen planes by the end of the year," said Pierre Van Wetter, Chief Commercial Officer and Co-Founder at Sonaca Aircraft.

Two versions are currently available for sale: the Sonaca 200 Trainer for the analogue version, and the Sonaca 200 Trainer Pro for glass cockpit version.

"In the context of an increased demand for pilots by the airlines, we are faced with schools that need to replace and expand their existing fleet.

In order to respond to this need, Sonaca Aircraft will have a brand new assembly hall starting next January, which will enable us to deliver over 80 aircraft per year. No less than 40 aircraft will already be delivered in 2019," said van der Straten. ■

WORDS AND IMAGES David Hastings

IMC WITH A VENGEANCE

When the clouds start descending and everything closes in, what do you do? David Hastings had to find out the hard way...

DAVID HASTINGS **1226 HOURS** MEMBER OF THE 1,000MPH CLUB **PILOT SINCE 1964** 38 TYPES FLOWN

This was the year when the west coast of the USA experienced some very unseasonal weather with a stream of weather fronts sweeping in from the Pacific Ocean, bringing rain and low cloud instead of the normal blue skies. We planned to take the Cessna C-337 twin from our base in San Francisco up to Kalispell on the Canadian border to visit the Glacier National Park. On the way up we had seen this weather at first hand, as after a nightstop at Redmond the Met man had forecast clear skies all the way to our destination. But we had ended up in heavy cloud, and an instrument let down and approach into Kalispell. However, on our return home the weather got even more exciting – as you will see – and it was a good job that our wives decided to return on scheduled airlines.

0500hrs and we are all up for an early breakfast, and by 0530hrs we are driving out of Whitefish in a super dawn back to the airport at Kalispell. We see the women safely to their Delta check-in desk and then make our way out to "Sarah", our C-337 on the ramp. We load the kit and then have the usual very thorough pre-flight, check the fuel drains and also look at the undercarriage doors. We also watch our wives depart on the Delta flight going to San Francisco via Salt Lake. The Met still confirms that it will be fine, so we file our VFR flight plan and then start up at 0710hrs and are cleared to the long runway of 02, completing all our checks as we go, with the weather still looking good. 0715hrs and we climb away from Kalispell in the smooth air and it is nice to be able to see all the surrounding mountains, very different from our arrival.

Seattle Centre clears us up to Flight Level 85 and we settle down in the cruise, checking everything as we go, but "Sarah" sounds happy. Now we cross over the Pend Oreille River at Thomson Falls and we can see the Canadian Rockies showing up clearly to starboard – we both still cannot believe that we crossed them last year, and this morning you can see for hundreds of miles. 0915hrs and we pass over the VOR beacon at Pullman in the Mullan Pass and a good landmark at 6,800ft, which puts us exactly on track. 1015hrs and we can see Walla Walla again, but also there is a huge mass of cloud ahead, so the talk of "clear skies all the way" was wrong. The cloud now rapidly spreads beneath us, and we talk with Seattle Center, who gives us the bad news that there is a thirty minute hold at Redmond and the cloudbase is down to 800ft. We ask them to cancel our VFR flight plan and substitute this with a new IFR (instrument flight rules) one and within a few minutes they are back, with our new clearance up to FL 105 which takes us into solid cloud. Eventually we reach Redmond

and are placed into the holding pattern (race track) and spend a tiring twenty minutes going round and round in cloud, as we are number six in the hold, before we finally get our clearance to descend.

I break out of cloud at 600ft, lowering gear and flaps and we search for the field in the middle of a heavy rain shower; the runway suddenly appears right on target and the Tower then clears me to land on "RW 10 or RW 04 your choice". 1050 hrs and we shut down on the ramp and get refuelled to full tanks. What a trip and what weather for the west coast of the USA, still it sharpens up your instrument flying. We walk over to Flight Service and visit the Met, where we get the awful news that the weather is bad almost all the way home, but they assure us that there are no embedded cu-nims on our route. They also confirm that we now have at least a two-hour delay before we can depart. Nothing to it but to enjoy a coffee and then walk back to sit in the cockpit of "Sarah", enjoy our lunch boxes, with R/T on, in case we are called early, but the rain is pouring down.

"We sit and listen to all the large and small aircraft trying to get their departure times brought forward, but the weather has obviously caused chaos"

IMC ALL THE WAY HOME

We sit and listen to all the large and small aircraft trying to get their departure times brought forward, but the weather has obviously caused chaos. We hear the large business jet beside us call to see if he can go, but are delighted when the Tower tells him 'Negative!' and also reminds him that his clearance will be behind the Cessna C-337! 1315hrs and at last the Tower confirms that we are now No.1 and we start-up, getting our IFR clearance, which we read back carefully and then we are cleared to the hold for runway 10, all 7,000ft length at an elevation of 3,077ft, where we join the queue waiting for take-off clearance. We have a cloudbase of 550ft, so this means we will be into cloud immediately after take-off, so we run through all our emergency procedures. 1325hrs and we are airborne in the pouring rain and soon vanish into the clouds, so it's tighten the harness and turn up the cockpit lighting.

Seattle Center now takes us over, with a great controller looking after us and we are cleared up to Flight Level 100 on airway Victor 25, so we go on to oxygen and for a time run between cloud layers before vanishing back into the murk. She clears us up to FL 110 and we stay in the thick cloud with the hidden mountains all around us, but luckily we are not picking up any ice and "Sarah" just purrs along.

Occasionally we break out to see the squall lines, which are throwing us around and we also get brief glimpses of the ground, before it is back onto instruments.

This is just unbelievable weather, some parts are smooth, but then the clouds get dark and we are into severe turbulence. The instrument flying is now hard work and we decide to take fifteen-minute spells each, which eases the pressure somewhat. Our kind

BELOW: Home at last as we head towards RW 19R at Concord

Another day, more clouds appear…

controller then turns us west to avoid conflicting traffic, which according to my calculations and chart, puts us on a course towards Mt. Shasta, so we are relieved when she turns us back on track. Two hours later and we begin to see quite large breaks in the clouds and we ask Seattle Center if we can leave FL110 for a lower level. She tells us to wait but then 15 minutes later, bless her, she clears us down to Flight Level 70 and we are almost out of the bad weather, as we pass the VOR at Red Bluff and find our navigation was spot on.

Now we can see Chico, we come off instruments and the blue sky appears, but we notice another large build up of cloud over the Bay Area. At last we can just see Mt. Diablo as we are handed over to Oakland Center and a prop-jet airliner passes us to starboard at the same flight level! 1655hrs and we are handed over to Concord Tower, who seems pleased to hear our call-sign and they clear me for a descent over the wide Sacramento River and our last look at the best landmark in the area, Mt. Diablo. Then we turn finals for RW19R at Concord for the very last time in "Sarah", a sad moment for both of us, but still, thanks to the weather, it has a been a really memorable last flight. 1700hrs and to my joy I make a real "greaser" of a landing in good old "Sarah", and the Tower welcomes us home as we taxi up to Pacific States Aviation, where Singh and the team are waiting for us. I feel very upset when I shut down both the engines for definitely the last time and realise that we have now had our last flight in "Sarah", that wonderful Cessna C-337 Super Skymaster, as she leaves for her new career in the California Forestry Fire Service in 14 days' time.

But what flights we have enjoyed in her from 1984 to 1991, over 29,000 miles of flying, or the equivalent of once round the world and a bit more. Then there are all those wonderful airports that we have visited, from the big international ones at Dayton, Calgary, Chicago, Albuquerque, Colorado Springs, New York, Tucson, El Paso, Palm Springs and Salt Lake, to the tiny ones at Los Banos, Tracy, Modesto, Chico, Monterey, North Platte and Stockton and then the thrilling mountain airports at Sedona, Trukkee, South Lake Tahoe, Jackson Hole, Rock Springs and Kalispell. Also of course all the truly amazing and beautiful scenery.

At every one we have always been given the same friendly, efficient and kind service and always of course there have been no landing fees. I guess this is all part of that great experience of flying in the USA, but none of it would have been possible without the friendship and kindness of David Patterson, who has taught me so much about flying, as well as of course, "Sarah" his great Cessna C-337 Skymaster which was such a joy to fly. Also those wonderful engineers at Pacific States Aviation who kept us safe. Entries in the Log Book and memories that will last forever. ■

ABOVE: The clouds were threatening as we were departing from Redmond

"I felt very upset when I shut down both engines for the definitely the last time and realise that we have now had our last flight in Sarah"

WORDS David Rawlings **IMAGES** Diamond

Diamond's in the sky

We have a look at the Austrian company's latest twin, the DA62 – the SUV of the skies

Back in 2012 when the DA62 was first announced – then named the DA62 – many people questioned whether a twin-engine piston was necessary in today's market, what with the power and reliability of new single-engine aircraft at the time. But Diamond were quick to play down concerns, with company Chairman Christian Dries stating: "The DA62 series is designed with significant growth potential and continues the upward expansion of Diamond's piston aircraft offerings.

It will compete well with conventional six-seat single and twin engine piston aircraft and offers a great step-up alternative to owners of high performance four- and five-seat singles seeking more space and capability without sacrificing operating economics."

This neatly summarises what Diamond seems to be about, with the DA62 building on the success of the DA42: "The DA62 represents the ultimate development of Diamond's piston aircraft line, incorporating decades of experience in certified composite aeroplane construction, safety, jet fuel piston power plants and advanced avionics integration," said Dries when he spoke to AOPA UK.

The DA62 grows on the DA42 with increased performance, payload, cabin volume and utility. A new range of features delivers superior cabin comfort compared with unbeatable usability to make flying even more easy. The large and comfortable cabin with seating capacities of up to seven seats sets new standards in general aviation. "The DA62 is for private pilots looking for more seats and utility, as well as charter operators and corporate flight departments," Dries explained.

"The DA62 is for private pilots looking for more seats and utility, as well as charter operators and corporate flight departments"

The DA62 was first announced in 2012 and received EASA Certification in April 2015 and, later the same year, FAA certification. When the aircraft received its certification, Peter Maurer, President and CEO of Diamond Aircraft Industries Inc. (Canada) said: "Our all-new DA62 is getting overwhelming high praise from everyone that flies it. Its combination of cabin volume, utility, performance and efficiency make it an ideal traveller for the US market. "We are extremely proud to be offering this great aircraft, alongside our popular singles and DA42 twin."

AT THE BUSINESS END

The DA62 comes with a wide variety of avionic

With a range of more than 1,200nm the DA62 can be used as a genuine business tool as well

The twin AF330 engines have a proven track record in Diamond's aircraft

With up to seven seats, the DA62 is a real SUV of the skies

options, but the standard installed Garmin G1000 glass cockpit offers unparalleled situational awareness and flight monitoring. It meets the highest expectations regarding operator convenience and better safety. The Garmin G1000 flight deck with standard 3-axis GFC700 Automated Flight Control System and yaw damper and available integrated weather radar, combined with simple single lever power controls, offers great control and a comfortable pilot workload.

The performance, stability, handling characteristics and ease of operation of the DA62 make it easy to transition from single engine to twin. The DA62 offers excellent single-engine performance offers a margin of safety that single-engine aircraft simply do not have. Especially when flying in inclement weather, over inhospitable terrain, over water, and at night, nothing beats the safety of continued flight in case of engine failure. "If you have ever flown a Diamond aircraft you know the easy-to-fly characteristics that our planes are known for. The DA62 is more stable and provides an even better flying experience because it is bigger and weighs more," says Dries.

"The DA62 is more stable and provides an even better flying experience because it is bigger and weighs more."

The DA62 offers an extra-large cabin, generous and adjustable front seats, a 60/40 split-folding three-seat second row bench and optional folding two seat third row bench. Comfortable access for all on board is assured through the two forward gullwing doors, and the huge rear door that provides access to all rear seats and the fuselage baggage compartment. Baggage is stowed in the generous nose and fuselage compartments, offering maximum flexibility in loading for any mission. Luxury features abound throughout, including premium interiors in several styles, colours and materials, all LED interior lighting, optional electric air conditioning and more.

And in the back there's more than enough room for comfort. The cabin is comparable to the size of an SUV, maximising space to offer room for up to seven passengers and plenty of baggage. This allows pilots and passengers alike to enjoy a luxurious mixture of black leather, chrome, polished carbon, and comfortable ergonomic features.

INDUSTRY-LEADING

But like any responsible manufacturer, Diamond is also concerned with passenger and crew safety. "Like the world's best automotive companies, we believe that avoiding an accident is the best defence – this is Active Safety including unparalleled

The state-of-the-art carbon fibre composite airframe makes this twin lighter than most

visibility, agile yet forgiving flight characteristics, superb runway performance, high crosswind capability, system and structural redundancy, and the latest in avionics technology," explained Dries. "Passive safety features offer protection, should the unexpected happen. These include a safety cell cabin, unobstructed head-strike zones and protected fuel systems," Dries stated. "Our industry-leading safety record is the result of our commitment to protecting the pilot and passengers with a long list of active and passive safety features. Active safety features help to avoid accidents in the first place, the first and most important line of defence. Passive safety features are designed to minimize the probability and degree of injury, in case the unexpected happens."

"With over 1,200 engines in service and a total fleet time of over 600,000 hours, the AF300 has proven itself"

UNDER THE COWLING

The Diamond DA62's AE330 180hp engines are a refinement of the AE300 170hp engine, in service in Diamond's DA40 and DA42 since 2009. With over 1,200 engines in service and a total fleet time of over 600,000hrs, the AE300 has proven itself to be reliable, efficient, and is fully supported in North America. The AE330 offers the same low specific fuel consumption, with the DA62's twin engines burning as little as 11.8gph of jetfuel, combined, at a cruise speed of 160ktas and less than 18gph at a high cruise speed of over 190ktas.

"State-of-the-art carbon-fibre construction, excellent efficiency, high quality construction, technological refinement, aesthetic appeal inside and out, the DA62 fills the gap between high performance single pistons and entry level turboprops. With a spacious cabin, offering optional three row seven passenger seating, excellent payload and exceptionally low fuel burn, the DA62 is best described as a flying luxury SUV.

"The DA62 offers the ultimate in handling, stability and control, ease of operation, and structural, system and propulsion redundancies, all coupled with a high degree of crashworthiness," he added.

WHAT'S NEXT?

As the DA62 is the next development from DA42, what's next for Diamond in the twin-engine market? "Currently, we are working intensively on our DA50 programme (Single Engine Piston aircraft with the same cabin like the DA62), and the DART Aerobatic Turboprop Trainer that is keeping us very busy – but will help to extend the range of our current portfolio. Therefore, there are currently no plans or huge changes on the DA62.

"It is being improved continuously as well as our other existing products like the DA42 or DA40. For the DA62 you can expect new, more luxurious seating with customised stitching and we are also working on some further seating options," Dries concluded. ■

TECH SPEC DIAMOND DA62

PERFORMANCE
Powerplant: AE330 with 2 x 180 HP
Propeller: 2x MT 3-blade constant speed
Max Cruise Speed: 190kts TAS
Max Range: 1,283nm
Consumption (60%): 11.8US gal/hr

WEIGHTS
MTOM: 5,071lbs
Empty Weight: 3,505lbs
Useful Load: 1,565lbs
Max. Usable Fuel Capacity: 576lbs
Main Tank/Aux Tank: 335lbs/241lbs

DIMENSIONS
Length: 30ft 2in
Height: 9ft 3in
Wingspan: 47ft 9in
Seats: 7
Max Altitude: 20,000ft

The DA62 is making pilots rethink the need for twin-engines in today's market

WORDS Nick Wilcock **IMAGES** Various

OF EASA AND ANNEX II AND OTHER THINGS

NICK WILCOCK **BOARD DIRECTOR** IAOPA FCL REPRESENTATIVE AT EASA **FORMER RAF PILOT**

There's no need to pull your hair out when it comes to all things EASA. AOPA board director **Nick Wilcock** is here to help...

EASA in all its wisdom is constantly tinkering with the rules 'for our safety', but it can be mightily confusing. So here, I've broken it down into sections so it's easy for you to understand.

ORS4 NO.1269

Just a few months ago, it seemed that anyone wishing to fly an EASA aeroplane/helicopter/airship/powered lift aircraft would by now have needed to hold a Part-FCL pilot licence. This was because the extension that the UK CAA introduced at the beginning of April 2018 under ORS4 No.1264 – necessary because the much-delayed Aircrew Regulation amendment hadn't made it past the European Commission, was due to expire at midnight on 7 June 2018. However, at a very late stage EASA invited NAAs to consider further extensions due to changes they themselves are now proposing! Hence the CAA released ORS4 No.1269 at the end of May, which means that the extension deadline has now become 7 April 2019, with the expectation that EASA may extend the existing LAPL opt-out derogation yet further, probably until 7 April 2020, which would then override the provisions of ORS4 No.1269. In simple terms, this means pilots wishing to fly EASA aircraft now have until April 2019 to convert to a Part-FCL licence – and very probably until April 2020.

ORS4 NO.1260

The CAA also introduced ORS4 No.1260 in April, which provided a solution for holders of NPPL (SSEA) and legacy national pre-EASA UK PPLs who couldn't readily hold LAPL medicals, but who wanted to continue to fly EASA aircraft such as the PA28, Cessna 182 etc. We were originally led to believe that, "If you can drive to a doctor's appointment, you'll be able to hold a LAPL Medical Certificate in some form, perhaps with limitations." While that might have been true for most, for others it seems it wasn't. Either that or they were having to spend a fortune on consultancy fees, which even then might not have convinced the CAA. The Pilot Medical Declaration overcame this for existing NPPL and UK PPL holders flying EASA aircraft within LAPL-level limitations, but the problem

Paragliders fall under EASA's Annex II

remained that initial issue of a LAPL requires a LAPL Medical Certificate. So it looked likely that many pilots might have had to hang up their boots on 8 April 2018 unless a solution could be found. However, I made the point to the ever-helpful folk at the CAA that a LAPL conversion for an NPPL or UK PPL holder wasn't really the same thing as an initial issue – no new skills had to be demonstrated and the conversion was only required to satisfy regulatory convenience. Great minds thought alike and so ORS4 No. 1260 was released, much to the relief of many NPPL and UK PPL holders. AOPA UK sent a formal note of thanks to the CAA for this excellent work, praising the flexibility which had enabled many of our members to keep flying after 8 April. Not that many of them could actually have done so in the low cloud and incessant drizzle of the following week though! We also recommended that pilots should convert to the LAPL sooner rather than later, mean that there would be less likelihood of getting stuck in the eleventh hour CAA Shared Services Centre log jam caused by other pilots leaving everything until the last moment! So unless you're determined to restrict yourself to non-EASA ('Annex II') aircraft only, by now you will probably have acquired a Part-FCL pilot licence. By the way, don't cut it into sections to fit into the natty little plastic wallet which seems to have been designed with that in mind, because that would render your licence invalid.

ANNEX II

But what is this 'Annex II' and where does it fit into the grand scheme of things? Although the Basic Regulation itself is also being amended, as I write it's currently '(EC) No 216/2008 of the European Parliament'. Annex II to the regulation deals with various aircraft for which the 'basic principles and applicability' of the Basic Regulation do not generally apply. A list of Annex II aircraft can be found on the CAA website. For the UK, such 'Annex II' aircraft remain subject to the Air Navigation Order 2016, rather than the Basic Regulation. However, to keep things simple the CAA permits the use of Part-FCL licences to fly Annex II aircraft of the relevant Class. So you don't need two different licences to fly a Pup and a Bulldog, for example.

ANNEX II FLIGHT TIME

But what about the acceptance of flight time in Annex II aircraft for Part-FCL licence requirements? Opinion 05/2017 was supposed to have cleared up any doubt over this, but after around 2.5 years of gestation, EASA's lawyers told it that its own amendment wouldn't have been permitted as it would have contravened the Basic Regulation, so it was withdrawn. This left us floundering in doubt – was flight time in Annex II aircraft recognised for Part-FCL purposes and if so, to what degree? IAOPA (Europe) and others told EASA in words of one syllable that we wanted clarification before Opinion 05/2017 went any further and eventually EASA agreed to look into the matter. Recognition of flight time in something like a Chipmunk or an RV-6 towards revalidation of an SEP Class Rating is, it now seems, absolutely fine. But what about training and testing? Our good friends at the CAA are perfectly happy with this, provided that the Annex II aircraft is suitable, but astonishingly EASA seemed to think that Member States wanted there to be an end date after which all training and testing had to be on aircraft covered under the Basic Regulation. Quite where they got that idea, they won't say; it is of course total nonsense and we told them so. Fortunately our lobbying has now paid off, because EASA has now proposed an amendment to ORA.ATO.135 which will mean that flight time in Annex II aircraft of the relevant class for training and testing will also be acceptable, provided that the NAA has confirmed that the aircraft is fit for the intended training purpose.

MICROLIGHTS

We also consider that flight time in certain microlight aircraft should be permitted for SEP revalidation purposes. The aircraft in question are non-flex wing 3-axis microlights which are not foot launched. Flight time in

ABOVE: All microlights come under the Annex II banner

something like an EV-97 Eurostar should certainly be acceptable, we consider, as indeed it already is for SEP Class Ratings included in pre-EASA UK PPLs. I put this point to EASA and was asked to submit the reasoning behind the UK's policy. With help from the CAA I have now done this, making the point that there is really no safety case to answer, because all pilots flying microlights in the UK must have received the relevant conversion training from an approved Microlight FI. However, at the time of writing I have yet to receive a reply or even an acknowledgment from EASA.

MODULAR LAPL

As many will also be aware, it is possible to add a ('LAPL-level') SSEA Class Rating to an NPPL (microlight). But only those NPPLs with SSEA Class Ratings issued before 8 April 2018 may be converted to LAPLs, leaving as the only conversion path available to other microlight pilots the disproportionate requirements of having to take pretty well the full LAPL course. Again we think that this is unreasonable and there is, perhaps, a growing light at the end of the regulatory tunnel about this. Because of the forthcoming end to the exemption which has enabled France to continue with the Brevet de Base, DGAC proposed a 'Modular LAPL' which will solve the problem for them. IAOPA (Europe) has supported this and the proposal was promulgated in Opinion 08/2017. However, although proposals for the Modular LAPL included a fair amount of national flexibility, it was subsequently realised that the amendment was going to raise complications. As a result, EASA has now proposed a simpler amendment to Article 4 (7), which is closer to the current wording but complemented by additional wording allowing Member States to establish a modular licensing system based on national requirements through the issue of national licences. These licences would be restricted to the airspace of the state of licence issue. However, upgrading to the LAPL would require the Member State to establish a conversion report, following the same process as already exists today for the conversion of national licences... which sounds exactly like the UK NPPL! If this gets the green light, we will of course be asking the CAA to continue all pre-April 2018 terms and conditions of the NPPL. So watch this space.

"However, although proposals for the Modular LAPL included flexibility, it was subsequently realised that the amendment was going to raise complications"

SIMPLICITY OR FLEXIBILITY?

I'll be the first to admit that all this licensing guff is tedious and many people consider it to be absurdly overcomplicated. As I once wrote, if Orville and Wilbur had known how it would all turn out, perhaps they'd have stuck with fixing bikes! AOPA's goals are to help as many people as possible to learn to fly at reasonable cost and subsequently to keep flying safely without having to cope with burdensome and disproportionate restrictions. However, if it means complicating otherwise reasonably simple rules with various exemptions and associated restrictions to achieve the flexibility we desire, then surely that's a relatively small price to pay? ■

THE TRIG TRAIN KEEPS ROLLING

The boffins at Trig don't stop producing new hardware. Their latest offering is an affordable ADS-B and 8.33 radio

Product TN72 GPS
Maker Trig Avionics

Trig Avionics prides itself on being a leader in compact certified avionics, and recently brought its latest item to market; the TN72 GPS Position Source. The TN72 is easy to install and an ideal upgrade to a Trig transponder. At only £299, the TN72 offers one of the easiest ways to become ADS-B Out equipped. ADS-B surveillance technology is growing in popularity and it makes sense to equip with a Trig transponder and TN72. This will improve your aircraft electronic visibility and flight safety.

Trig Marketing Manager Jon Roper said, "In busy skies, VFR pilots with a Trig transponder can become ADS-B equipped, using a TN72 GPS Position Source. This is a logical upgrade and a small price to pay for the benefit of improved safety. Recent EASA approval of the TN72 to ETSO-C199 means that a TN72 can be ordered now for delivery this month."

The TN72 is a certified TABS device (Traffic Awareness Beacon System), providing visibility to all ADS-B traffic receivers. Trig aims to provide a free EASA Minor Change for popular aircraft types in the near future. Trig offers the TA70, a compatible GPS antenna that is certified to TSO-C190.

Trig's compact and stack 8.33 radios are also now available – ideal for pilots who are falling behind and are yet to fit an 8.33 radio. Jon Roper said, "Growing numbers of airfields are becoming active, using 8.33 channels. It makes sense for pilots to get 8.33 equipped now, ahead of any local 8.33 deadline dates. Having a Trig 8.33 radio will remove the risk of fines and regulatory action. Already it is becoming harder to fly cross-country without inadvertently transmitting across an 8.33 channel if equipped with an older 25 kHz radio."

The TY96 stack radio and TY91 compact radios from Trig both provide aircraft owners with a high-quality certified 8.33 radio, packed with pilot-friendly features. Trig products are 'better by design', simple to install and operate, giving pilots the best mix of features, quality and value. Trig has an excellent reputation for customer support and offers a two year warranty from the date of installation. Trig is a relatively new company in the world of avionics. It began in 2004, with the goal to produce an inexpensive, solid-state and energy-efficient Mode S transponder – the TT31. The rest is history. ■

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BARON GETS THE GARMIN TREATMENT

Product GFC600
Maker Garmin

Garmin has received FAA STC for the GFC600 autopilot for both the Baron 58/58A (1984 model year or later) and Cessna 340/340A aircraft. Intended for high performance piston single/twin-engine and turbine aircraft that have a wide range of speed and performance capabilities, the GFC 600 delivers superior in-flight characteristics, self-monitoring technologies and minimal maintenance needs when compared with older generation autopilot systems.

The GFC600 is designed as a stand-alone autopilot that boasts superior integration potential with the Garmin's glass flight displays, navigators, as well as many third-party flight displays and instruments. The self-contained autopilot controller incorporates backlit keys and a sunlight-readable display that depicts autopilot status and mode selection. An intuitive built-in control wheel also provides convenient adjustment of aircraft pitch, airspeed and vertical speed modes. When the level button is selected, the aircraft automatically returns to straight-and-level flight.

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A BOOK FOR NEW AND OLD PILOTS

Nick Wilcock evaluates the latest on Operational Procedures, which even the most experienced pilot will find useful...

Book Aeronautical Knowledge - Operational Procedures
Author Jeremy Pratt

When the subject of 'Operational Procedures' first appeared on the theoretical knowledge requirements scene, the actual syllabus was somewhat disjointed. However, when the 2015 LAPL & PPL syllabus was developed, Operational Procedures focused on subjects which had practical application to the operation of typical light aircraft.

AFE's Jeremy Pratt is part of the team who produced the UK's Alternative Means of Compliance CAP 1298-1300 syllabuses for the PPL and LAPL, and is also a member of the PPL/LAPL Examination Working Group. The primary aims of revising the PPL/LAPL syllabuses were to bring them up to date and to ensure that theoretical knowledge requirements focused on a sound knowledge of the relevant subjects, rather than merely spotting exam answers. Jeremy Pratt's new book, the second in AFE's Aeronautical Knowledge series, does just that; in an easily read, well-illustrated manner it covers the essentials of Application of Threat and Error Management, Operation of Aircraft, Avoidance of Hazards, Search and Rescue Procedures, Accidents and Incidents, Care of Passengers and National Procedures at a 'need to know' level in each topic. It includes all recent legislative changes in a clear, modern yet comprehensive style and also encompasses the requirements of both Part-NCO and the Air Navigation Order (2016).

Of particular mention is the excellent manner in which the book demystifies the topic of Threat and Error Management, with practical examples of threats a pilot could face, as well as errors they might make.

Although aimed at pilots under training, this is a good reference for instructors and complements AFE's first volume of the series, which deals with Air Law.

The book includes simple progress checks at the end of each section and a list of model answers. But don't for one minute think that these are taken from the forthcoming set of PPL/LAPL examinations – they are purely there for the benefit of readers in order that they may check their understanding of the relevant subjects. Jeremy Pratt and the AFE team have done an excellent job in producing a textbook which covers the subject very well. I recommend it without hesitation. ■

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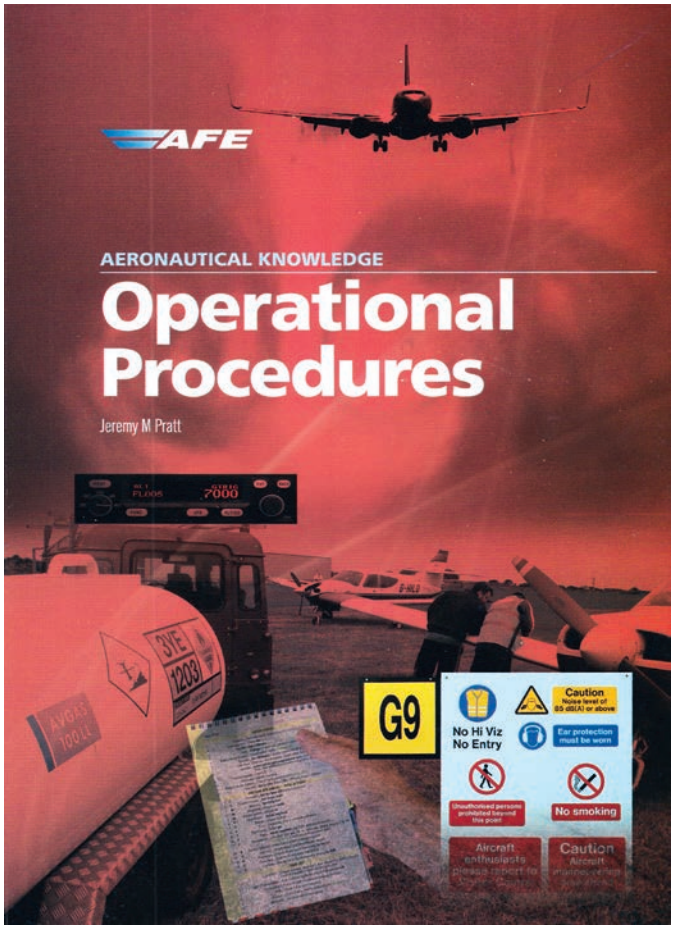

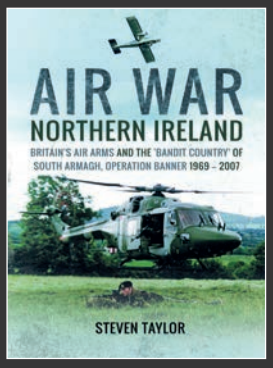

THE TROUBLES FROM THE AIR

Book Air War
Author Steven Taylor

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20% shares in this very comfortable 2-seat aeroplane are currently available at £10,000. (Reasonable offers for outright purchase will also be considered.) N518XL is hangared, and is equipped with complete IFR fit (Garmin 530, 2nd nav/comm, Mode S transponder, DME & 2nd Altimeter). The Liberty XL2 offers FADEC engine control and a 115 kias cruise at 6.0 US galls/hr. Current costs: £160/month and £80/ hr wet. Further details and demo flight available on request. FAA licence required for flights outside UK. (With a JAA/ EASA licence, acquiring an FAA licence is possible without a skill test or exams.) Trial period possible. Ideal candidate will have 200+ hrs. Contact Bill Roberts: 0207 564 5461, williameroberts2@aol.co.uk .

Semi aerobatic 2 seat tourer based at Biggin Hill. 160hp engine approx 700 hrs Prop 375 hrs. Constant speed prop & retractable nose wheel. Good avionics with Mode S & new Trig 8.33 radio. Always hangared. Good availability.

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Contact Gary 07785340368 or papaechogroup@gmail.com

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HELP NEEDED

We are searching for any **FACTORY DRAWINGS** (including cutaways and repair manuals) of the **ARMSTRONG WHITWORTH F.K.8** and pictures of them in manufacture or repair. With a particular focus on the wings but anything would be useful.

If anybody has any material that can help then please email **s.tomline@hotmail.co.uk**

It would be most appreciated!

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