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

AOPA UK

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*Slovenian airplane maker Pipistrel has **just received EASA certification** for its Velis Electro – we take a look at how it could **revolutionise training**...*

SYCAMORE RETURNS
Henry Simpson reports on the Bristol Sycamore that returned to British skies

AIRSPACE CHANGES
Nick Wilcock discusses the changes to airspace regarding Air Cadet glider sites

ONLINE TRAINING
AOPA has launched a range of training courses online – find out more

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THERE MAY BE TROUBLE AHEAD

AS I WRITE this, General Aviation Flight Training has restarted, or is in the process of restarting. Pubs and restaurants are opening, we're all being urged to get back to work on public transport and then spend, spend, spend.

The UK economy, across all main sectors, has been hit by its worst quarterly contraction in 41 years: three times greater than the decline seen during the whole of the 2008–9 economic downturn and the deepest recession in almost a century. Added to which, Brexit is back.

Where does this leave the aviation sector and specifically GA's place in the sector? All of the well-known airlines are in discussions with staff and unions about large-scale job losses, with predictions of 100,000 to be lost. This will surely impact Flight Training, not only for an integrated ATPL level but also, in particular, a modular ATPL, since there will be a surplus of qualified ATPLs already out there on the market. Added to which, how are the FTOs going to deliver EASA ATPLs after 31 December this year? Students will have completed the same training to the same standard but the licence will be issued by the CAA and to date there is no prospect of mutual recognition by EASA.

One regional airport has already lost half of its flight movements as an ATO that was based there took its training to Europe. This has further ripple effects: if Flight Training moves to Europe then there will be less need for infrastructure and people in the UK: fewer airfields, hangars, aeroplanes, and the people supporting them: Engineers, Flight Instructors, Operations staff and Air Traffic Controllers, and critically people willing to invest in the sector. How many people will want to start PPL training if there is no confidence in the economy or job security? How many people will want to get back to travelling by air? Anecdotally, friends of mine who are leaving the UK are all driving to Europe now.

AOPA is putting pressure on the DfT and the CAA to help them understand the interconnectedness of the Aviation sector. What happens in General Aviation impacts Commercial Aviation and vice versa. Another example is the issue of availability of Authorised Medical Examiners, who earn most of their fees from examining Commercial Pilots. In addition to prioritising their efforts during COVID-19 and beyond, they may not think it worth their while continuing to be an AME.

This also affects the CAA, which with a downturn in the sector is already seeing a downturn in income from fees and charges. To help mitigate this staff have taken a 20 per cent pay cut whilst their workload has probably doubled during the outbreak.

The team at AOPA is continuing to lobby the Treasury for a reduction in VAT for Professional Flight Training and looking at a number of ways this could be done, such as linking the qualification to a degree. The DfT is also looking into other incentives that can be used to kick-start the sector.

Go flying, while we still can. ■

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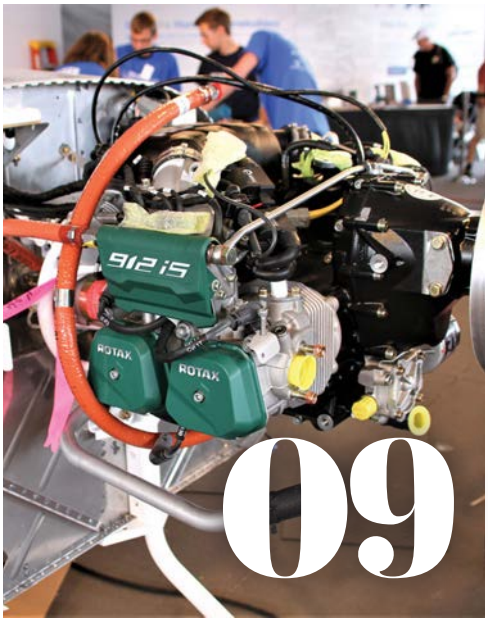

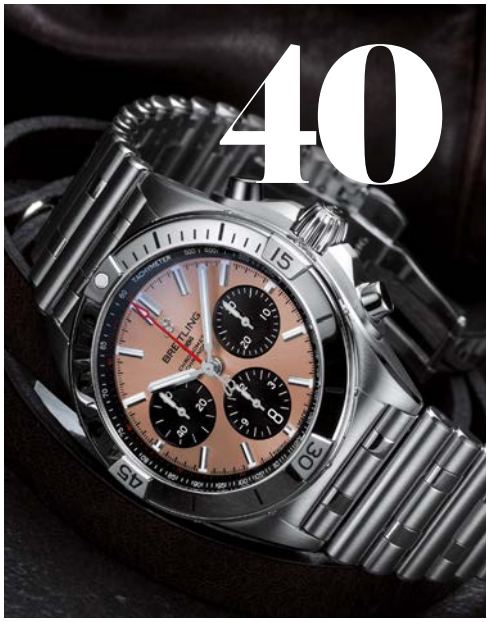

EDITOR'S MOMENT

Despite the lack of flying, the skies being quiet and a general downturn in aviation activities, this issue is filled with positive flying stories: from Henry Simpson talking to Blacky Schwarz about the Bristol Sycamore to the certification of the Pipistrel Velis Electro, which could revolutionise schools and is a very exciting prospect for the future of aviation and new pilots.

AOPA has also launched online training courses – many of which are free – so if you need to refresh your skills after being grounded for the last few months, then turn to page 39 to find out more. For more self-improvement, Carol Cooper is offering fantastic advice (in this two-part special) on decision-making in this month's PPL Corner, so flick to p14 if it's something you need to work on.

So, put the kettle on, sit back, enjoy the issue and plan where you're going to fly next. Blue skies!

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TRYING TO GET GA BACK TO NORMAL

THROUGHOUT THE lockdown there have been regular weekly meetings across many areas of interest: General Aviation recovery workshops hosted by the CAA with the Department for Transport, which identified the issues and concerns that GA was facing during the lockdown – AOPA kept members updated as information was released. There were at least two workshops with the CAA covering the development of 600 kg microlight aircraft; the UK will push ahead and a date in mid 2021 is being considered for the introduction into UK legal framework.

PROJECT GAGA

Work continues with project GAGA, which aims to deliver RNP approaches at three locations. We have been pushing the current applications harder with the CAA. Following a few conversations, I wrote to the CAA, and it has resulted in a few changes, which are in fact the changes that AOPA raised. These include a review of CAP 1616 and the removal of the bow tie safety model.

The DFT will be making funding available for these approaches under phase two, possibly beginning in September. It is my hope that because of our efforts the CAA will have a better process, leading to a successful conclusion. Furthermore, such applications under normal circumstances should not take longer than three years to achieve.

The AOPA Training and Education Committee had its first meeting online. This group includes several of the UK's leading instructors and examiners and is focusing on the issues affecting safety, considering training needs and or where more education is needed. AOPA is a member of GASCO, CHIRP and the AIRPROX board and we are trying to coordinate the main issues being flagged up through these bodies and make recommendations to the CAA where there is a training need.

We wrote to the CAA finance department regarding the impact of COVID on GA businesses seeking a period of grace, but the authority explained why it could only offer payment plans. The CC also took the decision to postpone the implementation of any increases in charges to later this year.

"The CAA also took the decision to postpone the implementation of any increases in charges to later this year"

THE DRONE COMMUNITY

The U-Space demonstration workshops were a series of seminars which highlight some of the goals of the drone community as well as some of the problems both in regulatory and technical areas. AOPA has engaged in this activity as the planned role out of Beyond Visual Line of Sight (BVLOS) and autonomous operations can impact on GA. We are seeking a systemised approach that achieves the greatest integration.

What is still unknown is how a future system of lower airspace traffic management will be paid for, or what services will be required. Whilst I have no doubt that drone operations will happen, I do not think that the number of drones will be anything like the number that has been forecast and I am concerned that there doesn't appear to be an overall business plan to support such a development. Manned aviation indicates how noise and visual intrusion are an issue with the public; so far there have been no studies in relation to the wider public's acceptance.

The CAA is developing its own approach to the evolution of drones and I have raised our concerns about the expansion of temporary restricted airspace applications. Furthermore, the CAA needs to be more transparent on this subject with the GA community – this was communicated to the CEO who has since provided several assurances.

FLIGHT TRAINING

AOPA worked on getting flight training restarted and as you will know the green light was switched on; due to the weather on that day there was clearly no massive leap into the air by GA, which is probably just as well, as I was fearing a number of incidents happening.

COVID-19 has not gone away and social distancing is still required. The matter is an HSE one and not a CAA issue, therefore the advice is to contact the HSE if you have concerns about how some businesses might be failing to apply the right approach to maintaining the correct interpretation of the COVID-19 rules on social distancing and sanitation.

The General and Business Aviation Strategic Forum (GBASF) met recently and it's clear that the DfT and CAA are trying to get their individual programmes back on track. These include: airspace, airfields, skills, COVID-19, aviation services, network of airfields and pilot training.

It is also interesting that the General Aviation Unit (GAU) is trying to establish an international regulators' forum, looking at where the issues are globally for GA and what the current forms of best practice are in other domains. The initial group includes Australia, New Zealand, Canada and the USA; once this is established, they will then seek to include other states. With our departure from EASA the CAA does not want to be alone in the world of aviation regulation.

It is my opinion (and not that of AOPA), that this feels like we are being spoon-fed again and that the engagement with us is not as good as it should be. Whilst the CAA may hold meetings and we spend a lot of time discussing issues, there needs to be improved dialogue. ■

Martin Robinson
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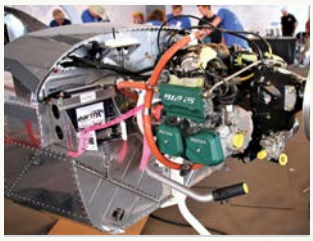
HELPING YOU STAY FLYING

Welcome to the **AOPA COMMUNITY** section of the magazine, bringing you all the **NEWS AND INSIGHTS** from the world of AOPA...



WORDS David Chambers **IMAGES** Various

MOVING ONLINE HAS BEEN A SUCCESS

The AOPA Members Working Group has had to adapt due to the pandemic, but the team has done a fantastic job to keep things moving along

LOCKDOWN HAS encouraged us all to adapt in different ways. Online meetings have become the norm, and so we held our first Members Working Group meeting using Zoom in July.

Attendees reported that they found the format works remarkably well. Those new to video conferencing have now familiarised themselves with good meeting etiquette. We made use of the facility to virtually 'raise your hand' and take the floor in an orderly manner. Presentation material was emailed out a few days beforehand and also shown on screen. The chat facility enables non-intrusive comments and suggestions.

The plus side is wider access to the meeting. Travel is no longer a limiting factor and virtually anyone can attend from anywhere in the country. Perhaps a downside is the lack of those private chats during the breaks and general mingling with others that help to welcome new members.

The shorter duration (three hours online vs five hours in person and time gained from not travelling to and from the venue) left a good part of the day for other activities. Annoyingly, it was one of the best weather days for flying we've had for some time. When permitted, we'd still like to hold some meetings each year in person and some via Zoom. It would make sense for the summer ones to be held at an airfield allowing travel by air or road depending on the weather on the day.

Online meetings have been a blessing for AOPA

The meeting remains a useful tool for two-way communication between the executive committee and members. Anyone is welcome to participate and members are encouraged to do so. Just contact me before our next meeting on 17 October which will also be held by Zoom.

CEO UPDATE

Martin Robinson gave a detailed report of current issues. In addition to the short-term response to CV-19, working with the DfT/CAA and others to get us airborne again, he also explained some of the longer term implications, such as a probable dramatic drop in demand for commercial pilot training.

The practicalities of Brexit are also high on the agenda, with much uncertainty. At least 28 commercial training schools (ATOs) have applied to be allowed to provide EASA training, but EASA itself isn't allowed to approve any until January. A UK-only ATPL is seen as less valuable. Who knows whether it will be Ireland or Austria (or another EU country) who will provide the oversight for UK EASA training, just as the UK CAA used to provide oversight for US-based EASA ATOs. On the plus side, there is a possibility of allowing FAA training on N-Reg aircraft.

"The meetings remain a useful tool for two-way communication between the executive committee and members"

Project GAGA, an EU funded project which AOPA is administering, aims to achieve approval of RNAV approaches at three UK GA Airports. LPVs for Haverfordwest and Gloucester look likely before end of 2020 but Stapleford may take a little longer.

Other topics are reported elsewhere in the magazine and

Manston could reopen in 2023

included Airspace regulation, ADS-B, GAR forms, training on Permit Aircraft. There are a lot of topics for AOPA to keep abreast of and voice the views of private GA, so it remains important to encourage as many pilots as possible to join and support the organisation.

AIRFIELD DEVELOPMENT

John Walker keeps track of a myriad of details of many airfields under threat. You can read about these on page 16 of the magazine but it was heartwarming to hear that Manston had been granted consent as a cargo hub and may reopen around 2023, also supporting other GA activities. Andrewsfield is also safe for the time being.

REGULATORY PROGRESS

Nick Wilcock provided a report of regulatory activity, especially around Flight Crew Licensing. As an international organisation AOPA will continue to participate in EASA activities after the year end and many will continue to influence UK regulation. E-exams for PPL/LAPL students will be introduced in October, requiring all students to register on the CAA portal, and clubs to schedule exams in advance. There will be a need for many more Ground Examiners and the CAA is likely to reduce the three-yearly fee from £250 to £125. A few DTOs are currently piloting the new system.

Nick has also been looking at a couple of airspace change proposals, assessing their impact and discussing directly with those involved.

CHAIRMAN'S PERSPECTIVE

Our Chairman, Pauline Vahey, updated us on the wider organisational changes afoot, with the main initiative being to sell AOPA's property in London and move elsewhere.

Although online meetings have been a success, there is still a need for some physical office space and meeting/training rooms.

MAINTENANCE GROUP

Malcolm Bird updated us on the development at the Maintenance Working Group, which remains a useful conduit between experienced maintenance engineers on the front line and the CAA. He felt the CAA had been very responsive during the COVID-19 crisis, such as enabling engine-health flights.

A topic that will come to the forefront in the months ahead will be the phasing out of leaded AVGAS.

It is thought around 65 per cent of the fleet could run on unleaded, with higher performance engines less able to adapt. Technology offers new options, including electric and hydrogen, which need to be fully considered.

Another topic was how to record time for the purpose of measuring component lifetime – there are at least seven different ways to do so, all leading to potential confusion and possible additional cost. ■

AOPA FLYING INSTRUCTORS REFRESHER COURSES

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 Assessment 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 Course and pass an assessment of competence.

NEXT DATES

The next dates for the course are

24-25 November 2020.

Approval has now been obtained from the CAA to run this Flight Instructor Refresher Course using Zoom on a one-off basis due to the current pandemic. It is therefore imperative that any candidate is up to speed on using Zoom prior to commencing the Course. Further information can be obtained from Course Administrator, John Pett, on 07754780335. Please book the Course online at www.aopa.co.uk

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.

WORDS George Dunn **IMAGES** Various

MAINTENANCE WORKING GROUP ON FLIGHT TRAINING

There's lots of confusion around what can be done with training aircraft, but the Maintenance Working Group is here to clear it up...

THE NEWLY discovered ability for groups to conduct their meetings online using platforms like Zoom has enabled those involved to keep up with developing situations and to easily compare notes and experiences. The AOPA Maintenance Working Group held just such a virtual meeting at end of June.

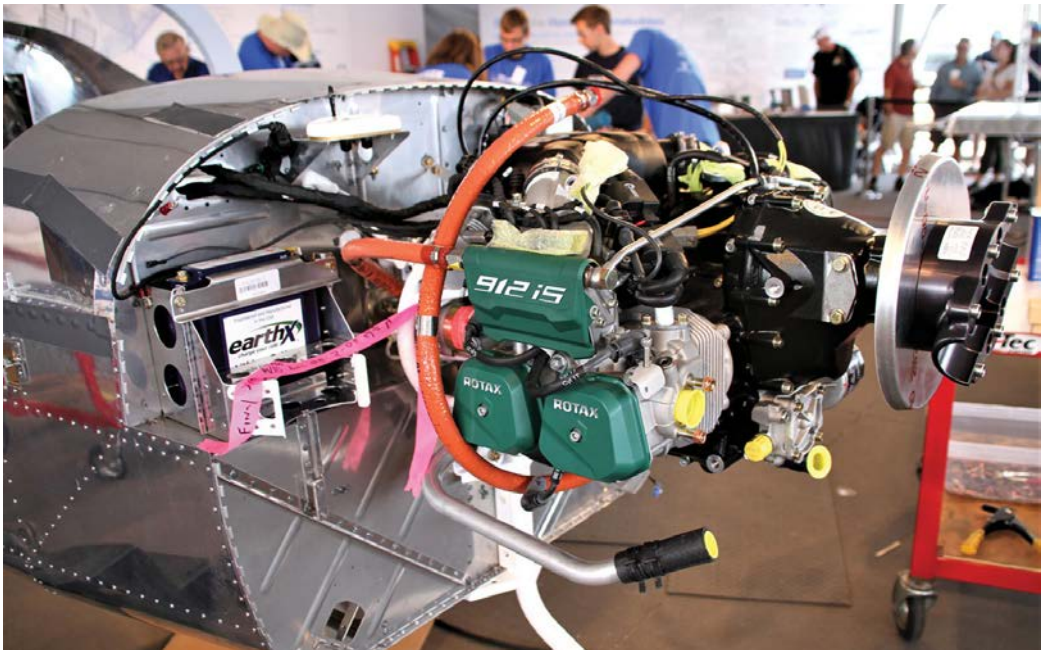
The WG comprises AOPA member aircraft owners, heads of maintenance organisations and personnel from the CAA whose area of responsibility includes engineering and maintenance of GA aircraft. As well as current issues, the agenda included a regular item on engineering and maintenance problems from aircraft owner members who raise queries and seek advice.

"The regulations separate the existing continuing airworthiness requirements for 'light aircraft' from those for licensed air carriers"

One query, and a bit of a perennial, concerned the application of GR 24 (Generic Requirements 24 – Light Aircraft Piston Engine Overhaul Periods found in CAP 747 – Mandatory Requirements for Airworthiness) to aircraft being used for flight training. Aircraft owners, whether sole owners, a member of a group, or a flying club or school, usually become familiar with this set of requirements as the engine hours approach the manufacturer's recommended time for overhaul. For private flying, the hours could be exceeded indefinitely by going onto 'on condition', as prescribed in GR 24, but for aircraft used for flight training the exceedance was limited to 20 per cent, again with certain conditions attached.

The final release by EASA of the long-awaited Part ML (Airworthiness Requirements for 'Light Aircraft') in March 2020 changed all this. The timing coincided with the UK gearing up to deal with the emerging pandemic, and it is fair to say that the introduction of this new set of regulations was somewhat overshadowed by the lockdown situation.

The regulations separate the existing continuing airworthiness requirements for 'light aircraft' from those for licensed air carriers. Part ML applies to non-complex motor-powered aircraft, i.e. aeroplanes of 2,730 kg MTOW or less, rotorcraft up to 1,200 kg, and other ELA2 aircraft, e.g. sailplanes, balloons and small airships, and can include club aircraft used for flight training. The Aircraft Maintenance Programme (AMP) agreed between owner and maintainer, and signed off by the owner, uses a risk-based approach which obviates the requirements of GR 24 and 17, the latter applying to VP propellors. Thus, an engine on an aircraft used for flight training can continue to be operated on condition if the AMP includes a series of sensible checks, bearing in mind the use to which the aircraft will be subjected. These can include cylinder



The Rotax 912 has airworthiness limitations

compression measurements (as in GR 24), the monitoring of oil consumption, and an oil analysis at each check, for example. If, as happens occasionally (when an engine is stripped down following a prop strike halfway through the manufacturer's recommended overhaul period) much becomes known about the condition of the internal components of the engine, possibly with replacement of some showing wear or corrosion (e.g. camshaft), then it would be reasonable to expect the engine to have a much longer life than the manufacturer's recommended figure before an overhaul to zero hours becomes necessary. In discussions on the AMP between owner and maintainer, it needs to be borne in mind that not all makes of engine allow such flexibilty. The Rotax 912, used in some training aircraft, has airworthiness limitions that are highly prescribed.

The main beneficiaries of the more flexible approach will be the flight training schools and flying clubs as it should lead to a reduction in long-term operational costs. Full information can be found on the CAA website, and a perusal of the contents is recommended. At the time of writing, GR 24 and 17 await revision to take account of the new rules.

Finally, to answer a query that often comes AOPA's way when an owner changes his/her maintainer: "Who owns the AMP – aircraft owner or maintenance organisation?" If the latter had agreed the AMP with the owner and charged for the time spent, then it belongs to the owner and it can form the basis of the agreed AMP with a new maintainer. If the AMP was a generic programme (possible in the case of ubiquitous aircraft such as C172s or PA 28s) with no charge being made, then it belongs to the

TOP THREE
TIPS AND ADVICE

1 AVIATION SAFETY REPORTS (MOR)
These should be completed whenever you encounter a safety-related incident. Completing an MRO allows trends to be noticed and helps makes flying safer. Guidance on how to complete one can be found on the AOPA website.

2 UNLEADED FUEL
Can your aircraft run on the unleaded fuel found at several airfields? AOPA research suggests that 65 per cent of UK-registered aircraft can. Check with your engine and airframe manufacturers. Apart from generating less pollution, maintenance bills can be reduced!

3 EASA PERMIT RENEWAL
The CAA is now desk-issuing many permits without a surveyor visit. They simply interview your maintainer by phone and, if the paperwork is in order, issue a permit remotely. It is worth submitting your application well before your current permit expires.

WORDS Carol Cooper **WORDS** Various

MAKING THE BEST DECISIONS

In this two-part series on decision-making CFI Carol Cooper explains, in-depth, how you can stay safe and not let one bad choice compound into many...

SO YOU'RE a pilot or you are going to be. Can you make a good decision in the event of a problem when you are flying or planning a flight? Most accidents are a result of poor decision-making throughout a course of events. Professional pilots are regularly tested on their ability to make decisions, and they have a very comprehensive checklist implemented by two pilots, not one.

So what about us, flying single crew, often not as perhaps as you would like, and certainly not lately. The poor winter weather and the coronavirus has resulted in most leisure pilots being 'out of practice' and therefore making good decisions will be more important than ever. Perhaps we will be flying aeroplanes that haven't flown for a while – is everything working the way it was before we were grounded?

MAKING THE RIGHT CHOICES

How do we go about making the right decision for the nature of the problem, and how can we train ourselves to make good decisions?

How do we make decisions? I am not going to get too involved or complex – this article is for the private pilot who flies for fun, but what can cause us to make poor decisions?

Communication, between pilots and ATC, misunderstood messages, poor knowledge of ATC services, perhaps English is not your first language and you find ATC difficult to understand, maybe you fly abroad and find ATC there difficult to understand.

"How do we go about making the right decision for the nature of the problem and how can we train ourselves to make good decisions?"

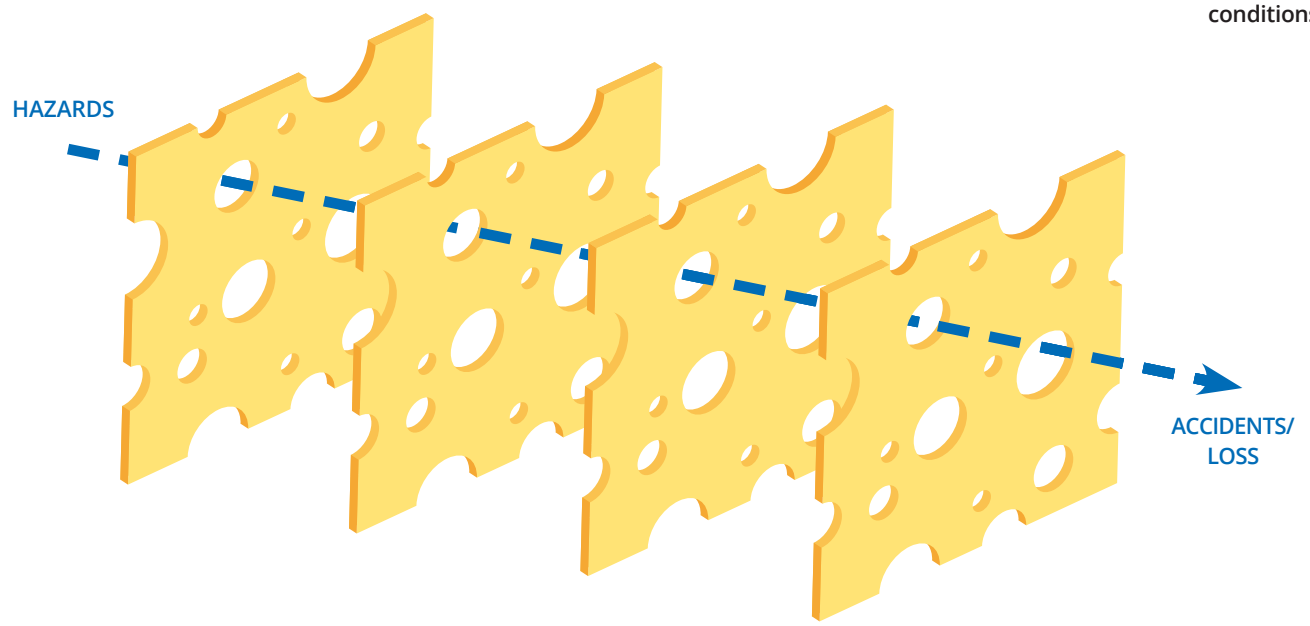
Not using checklists so you miss something (didn't put the transponder on) and incorrect operation of an aircraft system, Misreading GPS, not understanding aircraft systems or the GPS in the aircraft. How many of us buy a new gadget and read the whole of the instruction book, or any of it? Do you think 'let's learn how it works' by trial and error? Could that be you with your new GPS in your aircraft, or the new auto pilot?

Weather deterioration, we

THE SWISS CHEESE MODEL

MR REASON COMPARES HUMAN SYSTEMS TO LAYERS OF SWISS CHEESE

Some holes due to active failure. Other holes due to latent conditions



all know we can't control the weather but do you make best use of information available? Do you just look out of the window and think 'it looks a nice day, let's go flying'? Could that be you?

Tiredness and fatigue, personal problems and overloading. Everything getting to you, 'need a break, let's go flying'. Could that be you? Do you ever think of the I'M SAFE mnemonic (a CAA initiative)? Do you know what it stands for?

Bad habits due to lack of recurrence training. 'I don't need a check out, I know I haven't practiced emergencies and circuits etc. for ages, but I haven't got time to see if there is an instructor available. I am too busy.' Could that be you?

Any of these or a combination of them could cause you to make a poor decision. Do you suffer from any of the above? In the stressful times we live in, I bet you do.

If you're flying outside your skillset you could be putting yourself in danger

IT IS A FACT OF LIFE THAT HUMANS MAKE MISTAKES

Accidents are caused by pilots doing something or nothing, too late or too early, to be in the wrong place, and accidents are also usually a number of things strung together. People on much higher pay grades than most of us have spent years studying the subject of decision-making. Often things are given names that you might have heard of, but you possibly think, 'that is far too complicated for me, or I haven't got time for that'. The Swiss cheese model is the example here.

THE SWISS CHEESE MODEL

- Mr Reason compares human systems to layers of Swiss cheese
- Each layer is a defence against something going wrong (mistakes and failure)
- There are 'holes' in the defence – no human system is perfect (we aren't machines)
- Something breaking through a hole isn't a huge problem – things go wrong occasionally
- As humans we have developed to cope with minor failures/mistakes as a routine part of life (something small goes wrong, we fix it and move on)
- Within our 'systems' there are often several 'layers of defence' (more slices of Swiss cheese)
- Things become a major problem when failures follow a path through all the holes in the Swiss cheese – all of the defence layers have been broken because the holes have 'lined up'.

What does that all mean? All the slices offer a possibility to take another route, so the holes do not line up. Only if the holes all line up does the accident happen. We do have options when we are flying.

We need to break the line of holes and take another option to another, hopefully better, outcome. Lots of systems now have backups or even backups for backups, because humans make mistakes.

If you have read some of the accident reports you can often see the pilot or pilots had options, but they failed to break the layers in the swiss cheese model.

"All of the defence layers have been broken because the holes have lined up"

We make decisions every day. What time to get up, what to have for breakfast. Plenty of us have lain in bed a bit later than usual thinking about the consequences of getting up later. Was it a good decision?! Late for work, speeding on the way to work to make up time, breaking the law to have five extra minutes in bed.

Most of the time you get away with it, but what if you get stopped for speeding, cause an accident because you were going too fast in a thirty mile an hour limit? Suppose a child ran out? I am sure you have heard the advert that if you hit a child at thirty, they will probably survive, at forty they will not, just for an extra five minutes in bed! The decision you made to have those extra five minutes has led to a sequence of things that caused an accident.

The swiss cheese model is just saying that one action leads on to another, therefore more consequences. We are constantly making decisions, some more important than others.

ACCIDENTS

When an accident occurs, – 70 per cent of the time it's the pilot's fault. That's why with modern technology the aircraft has backup systems. The technology is there to *not* need a pilot. Think of autopilot, auto-land, drones flown remotely. Think about twin-engine aircraft – you must be safer, you have a spare if an engine fails? Statistics show that is not true because more decisions must be made.

"Will it fly on one, can I control it, and am I in practice?" With a single-engine aeroplane, if the engine fails outright there are less decisions to make. A partial engine failure though can be more demanding, with options to consider that are best reviewed on the ground before take-off. More decisions may have to be made if you have partial power.

For those of us who love flying, we all pay a lot of money for that view and the freedom of the skies. To remotely control a drone would not give you the same feeling of exhilaration.

WHAT GOES WRONG?

The pilot is doing something they shouldn't be trying to do, for example:

- Flying in conditions outside their qualifications
- Being somewhere they shouldn't be (in controlled airspace)
- Doing something they shouldn't (aerobatics at low level)
- Trying to do too many things at once
- Distracted by their passengers.

ARE PILOTS ALWAYS TO BLAME?

This is simple enough to answer: no, It's not always the pilot's fault.

Sometimes the aircraft will have a problem, which the pilot has no control over, but the following actions are what the pilot has control over.

Different courses of action would lead to different outcomes, some having a safe outcome and others not. The decision needs to be made as to which is the safest.

To make a good decision we need judgement, to assess the information we have, and to come to a good decision, we need the required knowledge. It is unlikely we will make a good decision if we don't have the correct training to use that knowledge.

ACRONYMS

The commercial pilots have acronyms to help them to decide – do you? Probably not, but they could help you. Remember again they have regular training and testing, and checklists, and there are two of them.

They still have acronyms. Why do we use acronyms? Because they help you remember when you do not have someone to read the checklist for you, maybe you are on your own and in a stressful situation, and you are more likely to remember an acronym than just a series of checks.

I am sure you use acronyms FREDA, HASELL, HELL etc., so why not also use one when things are going wrong. One such is DODAR:

- DIAGNOSE
- OPTIONS
- DECIDE
- ASSIGN TASKS
- REVIEW

You can find out more about this when we will continue with each option in the October issue.

In the next issue of AOPA UK Carol will explain the attributes of DODAR how to ensure you stay safe. ■

WORDS John Walker

THE LATEST NEWS ON UK AIRFIELDS

THERE ARE airfields across the UK currently under threat. Here are the latest developments, updated 14 July 2020.

BRUNTINGTHORPE

Majority of aerodrome site to be used for motor vehicle storage. Residents given notice to remove their aircraft by 30 October 2020.

BOURNE PARK

Planning application approved on 26 June 2020 by Test Valley Borough Council for demolition of buildings associated with Bourne Park Airfield and removal of existing airstrip and outdoor storage areas leading to cessation of all aviation activity.

MANSTON

In a letter dated 9 July 2020, the Secretary of State has approved the granting of a Development Consent Order (DCO) to River Oak Strategic Partners (the site owner) to retain the aerodrome as a Nationally Significant Infrastructure Project.

There is now a six-week period for parties to challenge this decision through a Judicial Review. On 9 July 2020, Thanet District Council adopted its 2031 Local Plan that recognises the existing use of Manston as an airport and agreed to an early review of the adopted plan in the light of the DCO decision.

MONEWDEN

Monewden is due to close by Christmas 2020 with owner citing the main reason being the "constant gripes from the council re planning and moaning from the local few."

WYCOMBE AIR PARK

Site lease holder (Helicopter Aircraft Holdings Ltd) has agreed new leases with the land owner, Wycombe District Council (now assimilated into the new Buckinghamshire Council). The Council's adopted 2033 Local Plan provides for an industrial / warehousing complex on south-western part of the site requiring shortening of runway 35 and relocation of gliding activities to the north, changes for which a public consultation has been held.

Bourne Park's planning application has been approved

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The VC10 at Bruntingthorpe

VC10 UNDER THREAT

A team is trying to ensure the classic VC10 stays in ground-running condition

by **Henry Simpson**

BRUNTINGTHORPE is home to a collection of taxi-capable cold war airframes, many of which are now under threat. Earlier this year it was announced that Cox Automotive UK had acquired C Walton Ltd along with their sites, including Bruntingthorpe Airfield in Leicestershire. Cox Automotive has stated that: "There is no aviation future for Bruntingthorpe." This has put several of the aircraft there in jeopardy. Among these is a pair of former RAF Super VC10 tankers, a K.4 ZD241 (former British Airways/BOAC G-ASGM) and K.3 ZA147 (former East African Airways 5H-MMT). Both aircraft flew into Bruntingthorpe upon their retirement in 2013 and are owned by GJD Services.

However, in 2014 the VC10 Preservation Group, led by former RAF aircrew and engineering personnel, came together to bring ZD241 back to ground-running condition. Work on the aircraft culminated in 2018 when ZD241 was cleared to carry civilian passengers on board during taxi runs, which supported operational costs.

The group is considering options including moving ZD241 to another – currently undisclosed – site. This is not in isolation as the resident Buccaneer Aviation Group has also opted to move its operation and both its airframes to Kemble. Of the sites being considered Chris Haywood from the group commented that one site would enable the aircraft to continue its taxi runs, while another site would limit them to ground running or becoming a purely static exhibit.

Chris adds that it is hoped that a proposal will be reached by mid July, at which time fundraising will begin to facilitate the move of ZD241 to its new home. This is likely to require substantial fundraising efforts in a short space of time.

The Airline History Museum based in Kansas City, Missouri, is helping gather support for the project across the Atlantic with plans for a coordinated fundraising effort with the VC10 group. Incidentally the museum is itself also engaged in preparing to ferry its own 727 from Boeing Field in Seattle to Kansas City. Dan White of Cockpit Creations is creating VC10 designs for merchandise in aid of the fundraising campaign.

"The Airline History Museum based in Kansas City, Missouri is helping"

It is hoped that at least one of all the VC10s will be saved, but the future of the other aircraft remains unknown. This includes former RAF Tristars that are maintained in storage and have been the subject of multiple unsuccessful attempts to contract them out in the US.

It is worth adding that with Dunsfold also soon to close, the Brooklands owned VC10 maintained there is under threat as well. So now, more than ever, efforts are required to preserve this iconic type. ■

NOMINATE A HERO FOR THE NHS SPITFIRE

by **AOPA News Team**

THE AIRCRAFT Restoration Company, based at Duxford, has come up with a way of saying thank you to individual NHS workers, and has launched a JustGiving campaign to also raise funds for NHS Charities Together.

The company is famous for its restoration services of classic aircraft, as well as flying them. One of its operational aircraft is blue Spitfire PL983, which, since the pandemic hit the UK, has been flying around local villages to support #clapforourcarers.

"The response was utterly overwhelming," said a company spokesperson. "Being around the Spitfires so regularly can take for granted just what the sight and sound of this machine means to so many people.

"We just weren't prepared for the emotionally charged messages of support and gratitude that we received for that first flight. It was what paved the way for the development of the NHS Spitfire project.

"Over the course of the next few months we are going to be hand-writing 80,000 names onto our photo-reconnaissance blue Spitfire PL983 'L'."

Not just any names. The company wants members of the public to nominate local heroes – a kind neighbour, family member on the front line, volunteer PPE producer, or anyone who has helped or inspired through the pandemic.

To nominate a name, go to the Aircraft Restoration Company's JustGiving page and donate a minimum of £10 along with the name of the person and the reason for the nomination. ■

The Aircraft Restoration Company's tribute to the NHS

BICESTER AERODROME TO MANAGE THE AIRFIELD

by **AOPA News Team**

THE BICESTER Aerodrome Company is to manage future aviation operations at the Oxfordshire airfield. The company replaces Bicester Gliding Club – formerly Windrushers – which has moved out after failing to agree an ongoing deal.

The former RAF airfield, one of England's oldest and best preserved, is being developed by Bicester Motion, itself a development of Bicester Heritage which created a classic car industry hub in the restored ex-RAF buildings.

"Our intention is to ensure a viable, dynamic and accessible future for our airfield," said Dan Geoghegan, Managing Director of Bicester Motion.

"We will maintain glider and powered flight whilst aligning with Bicester Motion's vision to sustain the operation of past, present and future aviation."

Some of the team at Bicester Motion plans to continue aviation at the historic airfield.

Motion insists the gliding club could have stayed. "We suggested a flexible approach to allow them to remain at the airfield. The club never entered into any formal engagement, instead making a swift decision to not take up our offer to continue its activities, which was a sad result," said a Bicester Motion statement.

Bicester Motion hopes to encourage companies exploring new aviation technology, all-electric passenger flights and the use of drones, along with the more traditional forms of air travel, to use the airfield. This future would safeguard flying as part of the plan to regenerate the 444-acre site. ■

LOOK BACK... THIS MONTH 61 YEARS AGO

X-15 ROCKET PLANE MAKES FIRST FLIGHT

On 17 September 1959 the X-15, a joint programme between NASA, the US Air Force, US Navy and North American Aviation, took flight for the first time from Edwards Air Force Base, California.

In the joint X-15 hypersonic research programme, the aircraft flew over a period of nearly 10 years and set the world's unofficial speed and altitude records of 4,520 mph (7,274 kph) and 31,120 m (354,200 feet) in a programme to investigate all aspects of piloted hypersonic flight. Information gained from the highly successful X-15 programme contributed to the development of the Mercury, Gemini, and Apollo piloted spaceflight programmes as well as the Space Shuttle programme.

Three rocket-powered were built and X-15s flew a total of 199 times. Because the nose landing wheel lacked steering and the main landing gear employed skids, the X-15 had to land on a dry lake bed.

The Rogers Dry Lake adjacent to Edwards Air Force Base was the intended location for all flights, but there were numerous of other lake beds in the are selected for emergency landings.

AOPA NEWS HIGHLIGHTS

PILOTS BECOME FLIGHT ATTENDANTS

Icelandair recently fired all its flight attendants and told pilots they'll be doing those jobs temporarily. The airline and the FAs had been in a month-long labour dispute and last month the company ended it. "Icelandair will permanently terminate the employment of its current cabin crew members and permanently discontinue the employment relationship between the parties," the company said in a statement.

ICON NAMES NEW PRESIDENT

ICON Aircraft, which produces the A5 amphibious light sport aircraft, announced that it has named Jason Huang its new president. According to the US-based company, Huang will oversee all business functions with a focus on "maintaining manufacturing excellence, product development and innovation and providing an ownership experience that is second to none."

EAG PROPOSES ELECTRIC AIRLINER

The Electric Aviation Group (EAG) has announced a proposal for a 70-seat hybrid-electric airliner, in what amounts to "going big" in next-gen regional airliners. According to the company, "Whilst a number of small electric aircraft, up to 19 seats, have been proposed, their limited range and small capacity will make it difficult for an airline to deploy them in sufficient numbers to have a measurable impact on the environment."

Work has begun on the de Havilland Mosquito

TAKE-OFF CLOSER FOR MOSQUITO

The Trust has made significant steps in bringing a de Havilland Mosquito back to the skies

by **Henry Simpson**

THE MOSQUITO Pathfinder Trust has made significant progress over the past year in their goal to return a de Havilland Mosquito to UK skies. Their plans are proceeding despite the untimely death of Glyn Powell. Glyn was a driving force at Mosquito Aircraft Restorations in New Zealand, the company that recreated the Mosquito fuselage and wing moulds, enabling them to be returned to the air. His personal aircraft that remains under restoration is NZ2308 which was originally built in Australia as an FB.40 before being modified to twin stick T.45 standard, serving with the RAAF and then the RNZAF until the type's retirement in 1952. It is this aircraft that the trust plans to return to flight and bring to the UK, working with both Mosquito Aircraft Restorations and AvSpecs in New Zealand, who have been responsible for the three currently airworthy Mosquitos in the United States.

"Importantly the team is also working with the Aircraft Restoration Company"

Importantly the team is also working with the Aircraft Restoration Company at Duxford led by John Romain, who are contracted to oversee the restoration to ensure it meets UK CAA Engineering and Compliance regulations.

The team conducted an important audit and assessment of the airframe and spares in March, before travel restrictions were implemented, and the Trust is pleased to report that despite the industry-wide impact of COVID-19, efforts are progressing with formal contracts now in final stages of completion.

Whilst acknowledging that the current pandemic temporarily restrains their fundraising strategy, they plan to announce new plans for public support and participation in the project as well as a call for more project ambassadors.

It is great to see that they are making progress in fulfilling the goal of returning a Mosquito to the skies of the UK.

The full update from The Mosquito Pathfinder Trust can be viewed online at: www.thewoodenwonder.org.uk The trust plans to release further updates including photos and video from the New Zealand visit, as well as announcing significant news about the project over the summer, potentially by the time this issue of the magazine goes to print. ■

THE RAF IS FLYING THE FLAG

by **Henry Simpson**

A NEW paint scheme was recently revealed on the Royal Air Force's VIP transport aircraft, a modified Airbus A330 'Voyager' tanker transport. The aircraft, ZZ336, known as 'Vespina', was formerly painted in the same matt grey as the rest of the voyager fleet but has now been repainted into a new scheme to fly the flag and represent the UK across the globe.

The aircraft, which was fitted with business-class style seating in 2016, acts as a secure transport for senior members of the Royal Family, the Prime Minister and other senior cabinet members. The repaint was carried out by Marshall Aerospace and Defence at Cambridge Airport. The next day it was back in service in the tanker role, supporting Exercise Crimson Ocean, refuelling RAF Typhoons and F-35s as part of the work up for the carrier HMS Queen Elizabeth. The RAF is keen to point out that the flag design is correct in all aspects as it is convention for the flag to appear as though it is flying from the nose of the aircraft. Therefore from the starboard side it can be mistaken for appearing backwards or inverted as it is designed to be the reverse of the flag.

"The repaint was carried out by Marshall Aerospace and Defence"

A photo sortie carried out during Exercise Crimson Ocean provides several stunning pictures of the new livery which certainly takes its welcome place alongside other nations' VIP fleet designs. ■

A patriotic new paint scheme for the RAF's Voyager

The instantly recognisable roundels

FIRST FLIGHT OF THE 716X COMPLETED

by **AOPA News Team**

STRATOS AIRCRAFT announced the first flight of its Stratos 716X model with a flight that lasted 22 minutes.

Flown by test pilot Sean van Hatten, the Stratos 716X is a spacious six-place jet with generous space for baggage.

The all-carbon airframe, single-engine jet is designed to cruise at 400 knots and the first flight was a full-power take-off and climb to 13,500 ft. A series of manoeuvres were then conducted to evaluate handling characteristics.

The 716X took to the skies for the first time

The flight is the first of an extensive flight test programme that will span the next several months.

The Stratos 716X is a multi-role VLJ designed to comfortably seat six people to support personal, business, and air taxi use.

"The first flight went as briefed, which is a testament to the design quality and the professionalism of the crew here at Stratos," said van Hatten.

"The aircraft is well harmonised and its directional stability was very good. I'm looking forward to continued flight testing of this new design."

Stratos CTO Carsten Sundin said: "When we introduced the Proof of Concept 714 aircraft three years ago, interest was tremendous; it was clear that the market is looking for the performance and comfort we were offering, but in a true six-place aircraft. We have achieved this with the 716X."

The 716X will be offered as an experimental kit-build aircraft while the 716 will be certified by the FAA. ■

2020 AOPA ANNUAL GENERAL MEETING

Have your say on Tuesday 15 September

THE 54TH 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 Tuesday 15 September 2020. In normal times the meeting would be held at AOPA, 50a Cambridge Street, London, SW1V 4QQ. Since this year we find ourselves in extraordinary times the meeting will be conducted using the Zoom video-conferencing platform. The meeting will commence 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 2020 will be provided in advance of the meeting on the AOPA website www.aopa.co.uk together with the minutes of the 53rd 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.

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 participate are requested to 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.

The 54th Annual General Meeting of the British Light Aviation Centre Limited trading as the Aircraft Owners and Pilots Association of UK will be held using the Zoom video-conferencing platform on Tuesday 15 September 2020 at 2.00 p.m.

AGENDA

1. Apologies for absence
2. To confirm the Minutes from the 53rd Annual General Meeting
3. To receive and endorse the Directors' Report and Financial Statements for the year ended 31 March 2020.
4. The election of Directors to the Board of Management. The following Directors are due to retire by rotation: Martin Robinson, Chris Royle and Pauline Vahey. Martin Robinson and Pauline Vahey offer themselves for re-election.
5. To appoint as Auditors Messrs Venthams, 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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FLYING FEATURE

RETURN OF THE SYCAMORE

WORDS Henry Simpson **IMAGES** Henry Simpson and Red Bull Content Pool

The Bristol Sycamore had been missing from the UK skies for 46 years, that is until the Red Bull-owned OE-XSY flew it over from its home in Austria for a whistle-stop tour of England. Henry Simpson went to meet the PIC

IN 2018 WE SAW the return of a truly classic helicopter to the UK's skies, the sole airworthy Bristol Sycamore. I spoke to renowned helicopter pilot Siegfried 'Blacky' Schwarz about its visit and operating the vintage helicopter.

The Bristol Sycamore first flew in 1947 and became the first British-built helicopter to receive a certificate of airworthiness. The type entered RAF service in 1953, serving until the final examples were retired in 1972. The Sycamore performed a variety of roles including becoming the RAF's first search and rescue helicopter and being heavily used during the Malayan Emergency for troop transport and casualty evacuation. The type was also successfully exported and it is a former West German Navy (later West German Air Force) Sycamore Mk 52 that survives airworthy today.

Built in 1957, after its retirement from service it was sold privately to a Swiss owner, Peter Schmidt, who amassed a collection of spare parts to allow the aircraft to fly again and repainted it into RAF colours in 1988. It was later sold to the Flying Bulls who are based at Salzburg Airport in Austria, with a collection comprising an exceptional array of aircraft in Hangar 7, a museum of innovation and machinery owned by Red Bull boss Dietrich Mateschitz. With the aircraft and spares in their hands, restoration to flight began and it took to the air again on 2 July 2013.

RETURNING HOME

After many years of interest in seeing the aircraft return to British skies the trip was made over to the UK in the summer of 2018 to allow the Sycamore to take part in the RAF 100 celebrations. Siegfried Schwarz was the pilot on that first flight and indeed is the only pilot in the world qualified to fly the type. He has an exceptional record, including being twice FIA Freestyle Helicopter World Champion (in both 2012 and 2015), flying the Bo105. I asked him how flying the Sycamore differs from the more modern helicopters; he considers that it differs greatly in handling, its speed, vibrations and power output. Of particular note with handling, "There is no provision to ease the load on the controls so you have to use the Trim wheels. Therefore you have huge forces on the controls and they are always changing according to your speed and power setting." He adds that in a display "you have no hands free." He is however a big fan of flying the Sycamore, citing the history and provenance of the aircraft as well as it being a very pleasant cruising helicopter: "During cruising

"It was later sold to the Flying Bulls, who are based in Salzburg, Austria"

BELOW CLOCKWISE: The classic Bristol Sycamore returning to the UK skies, in front of Hangar 7 in Salzburg, and pilot Blacky Schwarz

The Sycamore flying over Fuschl, a lake in Austria

flight the helicopter is more stable than modern helis. If the trim is ok you can let go of the controls and it will keep perfect attitude and speed."

MAINTAINING THE SYCAMORE

In terms of maintaining the early design, it requires maintenance after every five flight hours for a check and greasing, with approximately three hours of maintenance for every 10 hours of flight. Major control checks, take place with more substantial services every 50 hours. Siegfried stated that there had been interest from shows to see the aircraft in the UK for many years, and a short tour of the UK was organised for the RAF's 100th anniversary.

LONG TIME COMING

The aircraft arrived in the UK on 8 June becoming the first Sycamore to fly in the UK for 46 years and returned to Salzburg on 23 July, each trip taking eight hours of flight time and requiring four refuelling stops. As part of its visit to the UK the Sycamore displayed at the RAF Cosford Airshow and visited its birthplace at Weston Super Mare, now home to the helicopter museum. The aircraft also toured other significant sites, including the Aerospace Bristol museum at the company's former home of Filton, as well as the former Westland factory at Yeovil when taking part in the RNAS Yeovilton Air Day. For Blacky the highlights of the trip included meeting the grandson of Sir George White (founder of the Bristol Aeroplane Company) and many people who built and worked on the Sycamore. Blacky said that the aircraft had received a very good public reception including "so many people connected somehow to the Sycamore."

"The aircraft certainly looked the part as it is in the colours of the final Sycamores in RAF service"

The aircraft's final event in the UK as part of the international celebration of the RAF's centenary at the Royal International Air Tattoo was amongst 302 other aircraft. Despite being registered in Austria as OE-XSY the aircraft certainly looked the part, as it is currently in the colours of the final Sycamores in RAF service – those in transport command on No.32 Squadron at RAF Northolt, although it carries a different registration (XG545) of an aircraft that ditched in the North Sea in 1957. With such a warm reception Blacky is sure that they will bring the helicopter back to the UK again.

The Sycamore's visit was the central part of a wider tour of UK airshows by the Flying Bulls that year, which included displays by Blacky in the Bo105 and the first UK appearance of the Flying Bulls magnificent DC-6 at Duxford.

The Sycamore's return comes at a time when several classic ex-military helicopter types are being restored in civilian hands. I look forward to seeing the aircraft return to the UK again in the future and thank Siegfried Schwarz for his contribution to the article. ■

BELOW CLOCKWISE: The instantly recognisable design, Blacky at the controls, and still showing off her moves

The aircraft that will put schools on the grid

Slovenian airplane maker Pipistrel has **just received EASA certification** for its Velis Electro – we take a look at how it could **revolutionise training**...

WORDS David Rawlings
IMAGES Pipistrel

THE VELIS Electro is the world's first electric-powered aeroplane to receive a Type Certificate from any authority (EASA. A. 573 TCDS). It is a two-seat, single-motor version of the Pipistrel Virus SW 121, which first flew in 1999 and is powered by a Rotax 912 S3 engine.

Pipistrel has worked on electric aviation for many years, and flew its first electric two-seater in 2007. Pipistrel went on to win the NASA Green Flight Challenge in 2011, and has produced nine different experimental and serially produced electric aircraft (the Velis Electro is a certified successor of the Alpha Electro).

"The Velis was conceived as part of Pipistrel's Velis Training system, designed to reduce carbon footprint and cost"

The Velis was conceived as part of Pipistrel's Velis Training System, designed to electrify flight training and reduce both carbon footprint and cost. The switch to electric power (stored on board in lithium-ion batteries that Pipistrel designed and produced) reduces the complexity and maintenance cost of the aircraft.

"The type certification of the Pipistrel Velis Electro is the first step towards the commercial use of electric aircraft, which is needed to make emission-free aviation feasible. It is considerably quieter than other aeroplanes and produces no combustion gases at all," said Ivo Boscarol, Pipistrel's founder and CEO, when he spoke to AOPA UK. "It confirms and provides optimism, also to other electric aircraft designers, that the Type Certificate of electric engines and aeroplanes is possible. The engine, which Pipistrel type-certified separately, is also available to other aircraft OEMs. For Pipistrel, this achievement injects additional motivation for the future eVTOL and multiseat hydrogen-powered projects."

The European Union Aviation Safety Agency approved both powerplant and aircraft in less than three years, a remarkable feat in itself because no regulator in the world had previously certified either an electric-powered aircraft or any aviation powerplant.

TECHNICAL INNOVATIONS

The Velis Electro was designed to be simple to operate and maintain, without compromising safety. Employing the Pipistrel's type-certified electric engine, the Velis Electro delivers power instantly and without hesitation – using a simplified user interface in a cockpit that maintains the same look and feel of its conventionally powered siblings. The reduced number of moving parts dramatically decreases maintenance costs and the risk of malfunctions is further minimised thanks to its built-in continuous health-monitoring system. This enhanced reliability allows the Velis Electro to have more than double the lifespan of powertrain elements in comparison to the previous generation of electric airplanes.

"The Velis Electro was designed to be simple to operate and maintain, without compromising safety"

Tine Tomažič, Pipistrel's Director of Research and Development told AOPA that the aircraft is full of innovations: "The aircraft features an entirely liquid-cooled powertrain, which not only allows it to operate in hot, cold and rain, but also much improves longevity and durability of component life. In addition, the battery has demonstrated compliance to the stringent DO-311A standard, is HIRF and lightning-strike resilient and crashworthy as demonstrated by drop tests."

Boscarol was quick to explain why the Velis Electro trumps traditional trainers. "The main difference between this aircraft and other concepts and previously non-type-certified aircraft around the world, is that piloting this aircraft is very similar to piloting a fuel-powered one. The cockpit is the same, the controls are identical, instrument panel view is the same. The pilot doesn't need to be an electric

The two-seat high-wing Velis has been conceived to reduce pollution and save schools money

The Velis has 50 minutes endurance plus reserve

A charge time of more than an hour might make the Velis uneconomical for schools

Pipistrel states that more than 30 Velis Electros will be delivered before the end of 2020

engineer to understand the systems and fly the aircraft. All the propulsion management and the interface between the engine and pilot is done by the aircraft and the pilot can concentrate only on flying."

CHARGE ON

The main goal for the Velis Electro is to be sold to schools, and those in a highly-populated area will be pleased as the new aircraft creates just 60 dBA of noise; with no pollution, the complaints should drop, but there is an issue as most lessons last for an hour and the problem for the Velis is that the battery life is currently 55 minutes, plus reserves. Boscarol said that the Velis is "designed as a trainer for the initial training process, mostly to fly in traffic patterns. The endurance is sufficient for a standard 45-minute lesson, and then during the de-briefing, changing the student and briefing of a new one, the aircraft can be fully recharged and continue its mission."

"Pipistrel hasn't developed a quick swap system, stating that to maintain superior longevity of the battery it developed a system employing liquid cooling for the batteries which precludes quick battery swapping"

Tomažič added that the battery charge time is "typically 45 to 80 minutes, depending on initial battery temperature when charging is initiated. If the battery is very cold, the system will first warm it up, hence the charging time is adjusted."

This causes another disadvantage, that for every hour of flight, the aircraft has to be grounded for an hour whilst it recharges. Pipistrel hasn't developed a quick swap system, stating that to maintain superior longevity of the battery, it developed a system employing liquid cooling for the batteries, which precludes quick battery swapping. "Consider that each of the two batteries weighs approximately 70 kg; quick swapping would necessitate additional ground-handling equipment and introduce potential safety hazard associated with battery dropping on the floor," explained Tomažič. This could cause schools to think twice about whether the Velis is right for them.

FULL ORDER BOOKS

Despite these concerns, Pipistrel has already filled its order books. "At this moment we are approaching 50 orders, mainly for schools but also aero clubs and environmentally-friendly organisations, who want to demonstrate quiet and emission-free flight. The largest initial order we have from Switzerland. In the past year and half, 25 pilots of AlpinAirPlanes made more than 400 flight hours with Velis's predecessor aircraft, the Alpha Electro. AlpinAirPlanes will distribute 12 Velis Electro aircraft over their daily flight schools on 10 airfields all over Switzerland with the goal to offer the most environmentally-friendly training possible. The FFA (Fédération Française Aéronautique, French Civil Aviation Authority) as the

French launch-customer will receive their first Velis Electro in the next few weeks; as well as the Swedish Aeroclub of Goteborg."

PHILOSOPHY AND BELIEFS

Pipistrel is no stranger to innovation in aviation. It's been the company's philosophy to make aviation more environmentally friendly. "I have dedicated 30 years of my life to making the aviation cleaner and quieter," said Boscarol. "If you look at the Earth from space, you will see a tiny light-blue belt around it.

This is our atmosphere. We can survive a few weeks without the food, several days without water, but only a few minutes without air. So, it is a duty of everybody who can contribute to it in any way, to make sure that our atmosphere remains as clean as possible. Aviation is the type of transport which is one of the biggest polluters in the world. Making it emission-free will contribute to cleaner mobility."

Making aviation cleaner is only half of Pipistrel's attitude, noise reduction is the other. "Think of this," said Boscarol. "In European countries such as Austria, Germany, France and Switzerland, there are almost 100 small GA airports, where the flight training is forbidden during the weekend because of noise! And honestly, who has time to go to lessons during the working day? But we are bringing the flight and training back, even close to the populated areas and even during weekends, because the aircraft only produces 60 dB of noise – which is only slightly more than the basic environmental noise – it's practically inaudible. You don't know that aircraft is in the air if you don't see it.

"We are bringing flight training back, even close to populated areas and even during weekends, because the aircraft only produces 60 dB of noise"

We try our best to satisfy all the needs of pilots and students. But we must understand also the people on the ground, who don't care about aviation at all. They just like their peace and quiet. So we must make sure that they are not disturbed by the aircraft in the air above their heads – and that's why we made an aircraft which produces minimum noise and no pollution."

Tomažič added to Pipistrel's beliefs by stating: "The Velis Electro is a technological springboard to Pipistrel's future electric flight products, which include cargo-delivery and air-taxi eVTOL vehicles, as well as larger, zero-emission hydrogen-powered 19-seat miniliner and microfeeder commuter-class aircraft."

Production is going to start ramping up. Pipistrel's plan for the rest of 2020 is to deliver four Velis a month, then from Janaury next year, it will ramp up to six aircraft a month. The plan is to eventually raise that number to 10 per month. And should their order books continue to fill, Pipistrel can double their shifts and push out 20 a month.

It remains to be seen what additional testing the FAA might require before issuing a type certificate for the Velis, or if Pipistrel will pursue that. The company noted plans to deliver aircraft to 31 customers before the end of the year. ■

TECH SPEC Pipistrel Velis Electro

PERFORMANCE
Cruising Speed(35 kW): 90 KCAS
Stall Speed With Flaps: 45 KCAS
Stall Speed Without Flaps: 51 KCAS
Max Climb Rate: 3,3 m/s (647 fpm)
Take-off Run (grass): 246 m (807 ft)
Take-off Run (asphalt): 241 m (791 ft)
Service Ceiling: 3,660 m (12,000 ft)
Endurance: 50 mins (plus VFR reserve)
Max Load Factor @ (1.875): +4g -2g

POWERPLANT
Engine: Pipistrel E-811 EASA
Max power: 57.6 kW MTOP
Propeller: Fixed-pitch composite three-blade, 1.64 m diameter

WEIGHTS
Empty Weight: 428 kg (941 lbs)
MTOW: 600 kg (1320 lbs)
Payload: 172 kg (378 lbs)

Pipistrel remains one of the most innovative aviation companies in Europe

TRAINING FEATURE

CHANGES TO GLIDING SITES

WORDS Nick Wilcock **IMAGES** Various

Make sure you stay inside the law and fly legally with the recent changes to certain airspace – Nick Wilcock explains...

IN 2014, due to issues with the Vigilant SLMG, Air Cadet flying was 'paused' until a future solution was identified. Most sites ceased flying for several years, but since spring 2017 ATC gliding has made a very welcome return, we are glad to report.

But with one very significant difference. Rather than SLMGs, the Air Cadets now use winch-launched Grob G103A Twin II Acro 'Viking' gliders. Unlike the aged wooden wonders such as the T-31 Tandem Tutor (or Timber Terror, if you prefer) on which I learned to glide, which were often hauled aloft by piano wire dragged behind an ageing Mk VII Jaguar (or the like) up to a launch height of about 8–900 ft, today's high-performance Vikings are launched on cables up to around 2,000 ft agl by very powerful winches.

It is absolutely essential that aircraft must on no account fly over a notified gliding site below the promulgated altitude to which cable launches might be expected, which are clearly marked on CAA charts. The effect of a collision with a winch cable both to the glider under launch and to a light aircraft is obvious; although the glider will probably be able to release and make a safe landing, the cable will slice through light aircraft structure like a hot knife through butter and the occupants will be very unlikely to survive.

It must also be remembered that gliding activity will not necessarily be contained within the promulgated launch site, particularly if good soaring conditions are available. For example, although RAF Little Rissington is a notified gliding site with a 2 nm radius and a cable hazard of 2,800 ft amsl, according to the UK Mil AIP gliders may be encountered within a 5 nm radius of the site at up to 8,000 ft. Incidentally, this information isn't included in the ENR 5.5 section of the UK AIP; although AOPA has recommended that it should be included, it seems that it may only be included in the aerodrome section of the AIP, but as RAF Little Rissington is a military aerodrome, it isn't listed in the UK AIP. However, nowadays the UK Mil AIP is freely available at https://www.aidu.mod.uk/aip , so if you intend to fly in the vicinity of military aerodromes, we recommend that you check the relevant aerodrome entry.

"It must also be remembered that gliding activity will not necessarily be contained within the promulgated launch site"

Note also that if a NOTAM is raised for an event such as an intensive training week at an Air Cadet gliding site, unfortunately the rules governing NOTAM submission only permit the RAF to notify activation of the site within the promulgated dimensions of the gliding site itself rather than including the maximum altitude to which gliding activity might be taking place. So if you plan to fly in the vicinity, a courtesy phone call to the number included

Airspace around Air Cadets' gliding sites has changed

in the NOTAM may well prove mutually beneficial.

Although Air Cadet gliders are equipped with FLARM, few GA aircraft use this electronic conspicuity system. So we have recommended to HQ 2FTS that the feasibility of fitting self-contained low-power ADS-B devices such as SkyEcho2 to Viking gliders should be considered, in order to improve conspicuity and to reduce the risk of collision.

We are very pleased to see the return of Air Cadet gliders to our skies, but GA pilots must ensure that they give glider launch sites a wide berth. Most sites monitor promulgated VHF frequencies, in the case of RAF Little Rissington 120.775 MHz, so if you really need to fly close to the site then a quick radio call may well be of benefit.

CORRECTIONS

Due to the amendment of certain EASA regulations since Carol Cooper and Mike Derrett's article in June's edition of our magazine, a couple of topics now require correction:

Firstly, the Aircrew Regulation now states at AMC1 FCL.140.A, FCL.140.H and FCL.740.A (b) (1)(ii) that training flight items should be based on the exercise items of the associated proficiency check, as deemed relevant by the instructor and depending on the experience of the candidate. The briefing should include a discussion on Threat and Error Management with special emphasis on decision-making when encountering adverse meteorological conditions or unintentional IMC, as well as on navigation flight capabilities. But the recommendations of the article are extant and comply with the AMC.

LAPL recency requirements were amended in October 2019 and are now:

• FCL.140.A LAPL(A) – Recency requirements

(a) Holders of a LAPL(A) shall exercise the privileges of their licence only if in the last 2 years they have met any of the following conditions as pilots of aeroplanes or TMGs:

(1) they have completed at least 12 hours of flight time as PIC or flying dual or solo under the supervision of an instructor, including: 12 take-offs and landings; refresher training of at least 1 hour of total flight time with an instructor;

(2) they have passed a LAPL(A) proficiency check with an examiner. The proficiency check programme shall be based on the skill test for the LAPL(A);

(b) If holders of a LAPL(A) hold both a SEP(land) and a SEP(sea) privilege, they may comply with the requirements in point (a)(1) in either class or a combination thereof which shall be valid for both privileges. For this purpose, at least 1 hour of the required flight time and 6 out of the required 12 take-offs and landings shall be completed in each class.

Flight time on Annex 1(e) 3-axis microlights may also be counted towards the flight time, except for refresher flight training with an instructor which must be conducted on SEP/TMG aeroplanes; this may include CS-LSA EASA certified Light Sport Aircraft. ■

"We are very pleased to see the return of Air Cadet gliders to our skies, but GA pilots must ensure that they give the glider launch sites a wide berth"

Make sure you give a quick radio call before you fly close to a glider site

NEW AOPA ONLINE TRAINING COURSES

AOPA is proud to announce a brand new online system for both licensed and student pilots, that also helps instructors.

Nigel Willson (AOPA Training & Education Committee) explains: "In present times, it is important to remind existing pilots (and teach student pilots) the correct current procedures, regulations, techniques and best practices. Additionally, Training Organisations sometimes find it difficult to offer a coherent Ground School infrastructure to guide students through the theoretical knowledge aspects in a timely manner that complements their flying training.

"Of equal importance, existing pilots seldom have the inclination to go back to Ground School in a club or training environment. And yet it is vital that they remain up to speed with changes in all of these previously mentioned areas."

"That's why we developed this online system to satisfy the requirements for Training Organisations, Student Pilots and fully-fledged Pilots. Full qualified instructor support is included. The system also provides explanations to questions and answers for progress tests and course exams", Nigel adds.

The AOPA Ground School site includes courses that all pilots really ought to take a look at. These include the *Infringement Avoidance Course*, the *Best Navigation Practices Course*, and for those who want to ensure their knowledge is up to date: the *PPL Updater Course*.

The system offers a range of courses for things such as the Night Rating and Restricted Instrument Rating (IRR – or IMC). All of the courses offered include practical application and best practice, and not just the knowledge required to pass a given test or exam.

For the student pilot, the system includes the nine required subjects for the PPL (all as separate courses), and includes realistic mock exams (in the same style and format as the new CAA PPL e-exams which are imminent). The system also automatically produces a theoretical examination readiness certificate for a student to present to their training organisation to allow the official exam to be undertaken.

Nigel explains further that through using the AOPA system, pilots are helping themselves and AOPA as an organisation. "The system is not restricted to AOPA members; it is available to everyone. That way, people can see the good work being done by AOPA, and the value of becoming a member as a result. Even those courses that have a fee are not going to break the bank"! Fees are typically £9.99 for one month's access to a course.

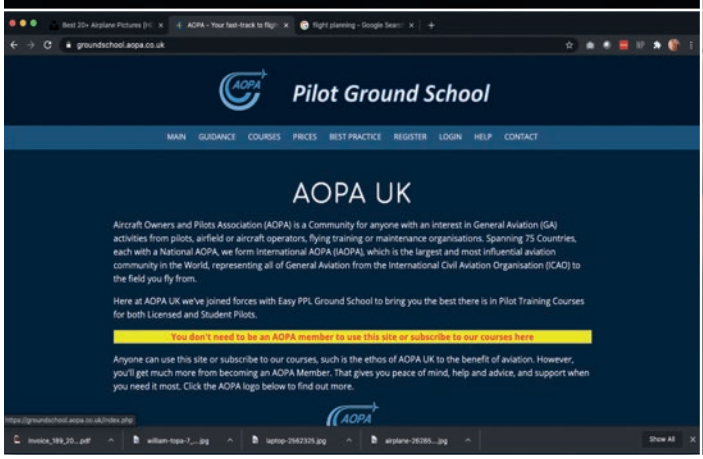
The new AOPA system may be promoted by any organisation to their pilots or students. Several members are already seeing fantastic results from pilots and students using this system.

The system is user-centric; it works across all devices irrespective of operating system. It has superb end-user support at both a technical and course material level. The AOPA system is brought to you in association with Easy PPL Ground School.

The site has a wealth of useful information available to everyone straight away. Free registration is required to enable courses to be undertaken via a simple, straight forward process.

You have nothing to lose in registering on this system and doing the FREE COURSES. We think you'll like the easy-going style so much, you'll be back to increase your knowledge further in other subjects.

For more information, visit: groundschool.aopa.co.uk. ■



MORE BLING FROM BREITLING

The all-purpose sports watch for every pursuit

What Chronomat watch
From Breitling

THE NEW Breitling Chronomat is an all-purpose sports watch. Its features recall the classic namesake from the 1980s and make it instantly recognisable. The eye-catching Rouleaux bracelet with a butterfly clasp perfectly expresses Breitling's modern-retro style, as does the signature rotating bezel with rider tabs. The new Chronomat celebrates a significant time in Breitling's history while projecting a clear vision for the future.

When the Breitling Chronomat was launched in 1984, it marked a return to mechanical Swiss watches, which had all but disappeared when quartz watches dominated the marketplace in the 1970s. Inspired by the Frecce Tricolori watch, which had been developed and launched in 1983 in collaboration with the famed Italian aerial squadron of the same name, the Chronomat celebrated Breitling's centenary in style and marked the return of the mechanical chronograph on which the brand had built its global reputation to its rightfully prominent place. This technical legacy, combined with stylish design codes, made the Chronomat the ultimate sport-chic watch of its era, an expression of aesthetics and confidence that made the chronograph cool again.

While the Chronomat has long been established as the watch of choice for aviators, it also found a passionate following among people whose adventures took place not only in the air, but also on land and at sea – above and below the surface. In fact, its versatility added to its allure as its tachymeter attracted the interest of Formula One teams.

Breitling had used the name Chronomat for some of its 1940s watches, and, in those days, the word was a portmanteau of 'chronograph for mathematics'. The 1984 Chronomat expressed something different: 'chronograph' and 'automatic', a name that called attention to the self-winding mechanics powering the watch. ■

Where breitling.com
Price £6,650

3X TOUCH APPROVED

What G3X Touch
From Garmin

GARMIN has received European Aviation Safety Agency (EASA) certification of the G3X Touch™ flight display for hundreds of single-engine certificated aircraft. The G3X Touch offers a variety of scalable panel configurations and a superior feature set that includes wireless connectivity and synthetic vision as standard, as well as advanced features such as display redundancy, advanced autopilot compatibility, engine monitoring and more.

Carl Wolf, Vice President of Aviation Sales and Marketing, said: "As a trusted leader in avionics, we're excited to offer this game-changing system to aircraft owners who are ambitious to pursue a flight display upgrade, giving them an opportunity to take advantage of the safety and redundancy benefits of a Garmin glass display system."

The G3X flight display is available immediately and approved for installation in hundreds of single-engine piston aircraft in Europe. Prices start at a list price of $7,995 for a single 7-inch display and $9,995 for a 10.6-inch display.

Where garmin.com
Price $7,995

THE LIVES OF AIR FORCE PILOTS

In this third volume of obituaries of airmen that served in the military, author Commodore Graham Pitchfork tells their amazing life stories

Author Commodore Graham Pitchfork

TWELVE YEARS since The Daily Telegraph Airmen's Obituaries Book Two was published, Air Commodore Graham Pitchfork has compiled ninety-one obituaries of outstanding aviators.

With a focus on personnel from a range of air forces, including the RAF, USAF (United States Air Force), RCAF (Royal Canadian Air Force), RNZAF (Royal New Zealand Air Force) and SAAF (South African Air Force), there are a number of fascinating and distinguished lives to read about.

Those featured include MRAF Sir Michael Beetham, the longest-serving Chief of Air Staff in the RAF (apart from its founder Lord Trenchard); Brigadier General Paul Tibbets who commanded the USAAF bomber Enola Gay, which dropped the atom bomb on Hiroshima on 6 August, 1945; and Wing Commander 'Dal' Russel, a highly decorated wartime Canadian fighter pilot whose logbook recorded kills in the Battle of Britain and the Normandy invasion. There is also Lettice Curtis, the first woman qualified to fly a four-engine bomber and who, by the end of the Second World War, had flown over 400 heavy bombers, 150 Mosquitos and hundreds of Hurricanes and Spitfires as part of her role in the Air Transport Auxiliary. Civilians' tales include the story of courageous Captain Jim Futcher whose VC-10 was hijacked by Palestinian terrorists in November 1974. As seen in preceding editions, Book Three commemorates the lives of an exceptional group of individuals and reminds the reader of the talent and experience we have lost from the world of aviation.

Air Commodore Graham Pitchfork spent thirty-six years in the RAF as a navigator, and commanded 208 Squadron. He was director of Air Warfare, and before retiring was director of Military Intelligence at the MoD. He is the author of several successful aviation books, including *Buccaneer Boys for Grub Street*.

In 2012 Commodore Pitchfork received the Guild of Air Pilots and Air Navigators Award and the Air Power Association Award of the CP Robertson Trophy for services to aviation writing. ■

Where grubstreet.co.uk
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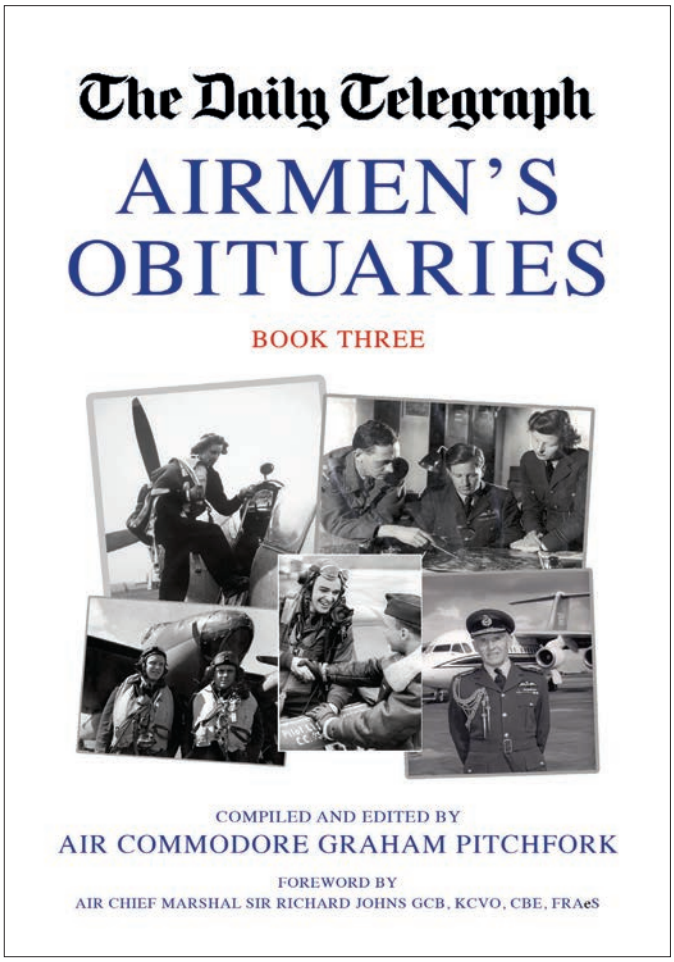

GNSS KNOWLEDGE

Author Zheng Yao, Mingquan Lu

This book systematically discusses the signal design theory and technologies for next-generation satellite navigation systems. It provides comprehensive information on the basic concept, theory, and key technologies employed in satellite navigation system signal design. Starting from the basic elements of the navigation signal, it combines traditional and advanced technologies into an organic whole, offering readers a complete system for signal design. Thanks to its rich content and clear structure, it is well suited as a reference guide for researchers and engineers in the fields of satellite navigation, positioning, etc. The book can also be used as teaching material or supplemental reading material by professors and graduate students alike.

Both authors have a PhD in electrical engineering and have been working on GNSS receivers, modelling and simulation as well as signal design and processing.

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The Bose® A20 aviation headset is our most advanced pilot headset yet. Its breakthrough innovations reduce more noise and provide even greater comfort than previous models, without compromising the clear audio you expect from Bose. Now includes auxiliary audio input and Bluetooth phone connectivity.

David Clark DC ONE-X

The DC ONE-X headset provides advanced comfort and technology features in a sleek, low-profile design. You'll have the sound performance and durability you need, with the comfort you demand.

Avmap Ultra EFIS

Designed for light-sport, ultra light and experimental aircraft, the AvMap Ultra EFIS contains solid-state gyros, accelerometers, magnetic field sensors, air data sensors and UAV Navigation motion processor. Compact, light and easy to install, providing reliable and advanced ADAHRS.

Dynon D3 Pocket Panel

Portable Touchscreen EFIS with Synthetic Vision

Featuring improved brightness, a new intuitive touchscreen interface, new synthetic vision display, and an even lower price point, the D3 is the most advanced portable safety device Dynon has ever made.

Garmin G5 Electronic Flight Instrument for Certificated Aircraft

Boasting a bright, 3.5 inch sunlight readable liquid crystal display (LCD), the G5 is approved as a primary source for aircraft attitude or turn coordination information and secondary source for altitude, airspeed and vertical speed in a single instrument.

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