

AOPA UK

The Sports car of the Skies



The **Marchetti SF.260** is sleek, swift and stylish. Charlotte Bailey asks: **is this feisty Italian the perfect weekend playmate?**

WEATHERLORE

Simon Keeling explores the science behind the weather proverbs

HAWAII

Steve Bridgewater says "Aloha" from the Hawaiian island of Oahu

PROJECT TEL

Can your aircraft run on unleaded? Malcolm Bird introduces Project TEL

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DOES THE CAA HAVE A POST-BREXIT PLAN?

AS I WRITE this, vaccinations are being rolled out and the number of people I personally know who are taking up the opportunity grows daily. It certainly gives me hope that we will be starting on the path to normality in the coming months. I, for one, am imagining being in the air on a sunny day, a blue sky with light cumulus above and the green countryside spread out below for as far as the eye can see to the horizon. What bliss.

However, realistically, it's going to take some refresher training to get there – which in my personal opinion is always an opportunity. Acknowledging I won't be the only one in need of a refresh, I'd best book my instructor early and have a plan.

Do we believe the CAA has a plan, now that we have managed to leave the EU with a Brexit deal? More specifically, does it have a plan to support the recovery of GA?

The CAA, under the auspices of the Department for Transport (DfT), now has a unique opportunity to rewrite the rules for domestic operation. I hope you took the opportunity to respond to the CAA's consultation (which closed just before Christmas) looking for ideas to fulfil the Government's stated aim to 'make the UK the best place in the world for General Aviation'. Let's hope the outcome constitutes some brave ideas that can be translated into reality to keep GA thriving in the UK. I can assure you that AOPA will continue to represent your interests as the changes work their way through.

It was encouraging to welcome the attendees of AOPA's second video conference Flight Instructor Refresher Course in January. AOPA and the CAA worked closely together to enable the course, supported by Zoom technology, to be run remotely over the usual two days. AOPA holds a CAA licence to hold the course and was delighted with the feedback from the first event run in such a way. Of course, although there are monetary savings in not having to travel and provide lunch, there was no stinting on the content and attendee satisfaction. I was encouraged that, to date, each course has been full and there was obviously hope that flight training will get back to normal. The next one is in March if you were wondering how to make the best of your newly available time.

Finally, some home news. AOPA UK completed on the sale of its previous headquarters at 50a Cambridge Street just before Christmas. The focus is now on the purchase of a more modern office near Sevenoaks, Kent. The hope is that, after refurbishment, AOPA will have a facility with modern video and communications, meeting spaces and offices to support the work the association carries out on behalf of you, its members. Once completed it's going to be a grand opening party to remember for a long time.

In the meantime, let's look forward and hope for the best. To paraphrase Alexander Pope: "People always hope for the best, even in the face of adversity." ■



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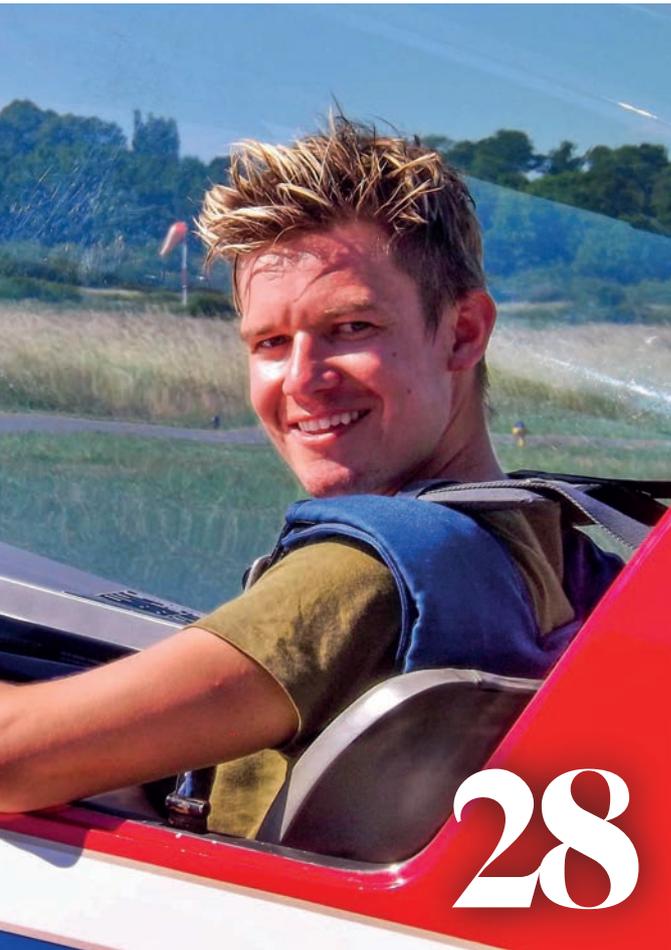
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EDITOR'S MOMENT

THE PECULIARITY of a bimonthly magazine means we wish our members and readers a happy New Year in our February issue, albeit written in January. But anyway, "Happy New Year" and "Hello" from your new editor.

I'd like to start by thanking Dave Rawlings for handing over the reins and everybody at AOPA for their warm welcome and backing.

For those who don't know me, I have spent much of the last two decades on the editorial teams of GA and historic aviation magazines as well as working in various marketing and PR roles within the aviation world.

It may sound trite but I find writing for AOPA somewhat serendipitous. You see, one of my very first assignments as a journalist was to cover the IAOPA World Assembly in Edinburgh in 2000 and since then the association has played an important part in my life. A minor heart problem meant I was unable to obtain my Class 2 medical so had it not been for AOPA (and the other member groups) collaborating on – and lobbying for – the National Private Pilot Licence I would probably never have earned my wings.

I'm therefore really looking forward to producing a magazine that AOPA and its members can be proud of – but to do that I'm going to need your help. I'm keen to learn what you enjoy about the magazine as well as what you don't like. What would you like to see more of and what do you think we need less of? Is the News important to you? What about book and tech reviews? What inspires you to read the magazine and what things could we do better?

I'm very conscious that this is 'your' magazine. It's a way for AOPA to communicate with its members but it should also be a way for members to communicate with each other. We all know that Brexit and the coronavirus pandemic are major

concerns – but what other issues really matter to you? Likewise, what new opportunities feature on your personal 'radar' and what do you think other people need to know about them? Of course, we could conduct a survey to obtain this information but personally I'd like to get to know our members better. I think the best way to do that is to talk to each other – who knows, you may even become one of our regular authors? My e-mail address is shown below and I'm looking forward to getting to know you.

You will find the first of our new 'Owner Insight' features in this issue, in which we ask Paul Freeland what makes the Marchetti SF.260 'just his type.' If you would like to take part in a future edition and extol the virtues of your chosen steed please drop me a line.

As these words were penned in mid-January it was a beautiful sunny day with a crisp frost on the ground. I can just see the daffodils pushing their way through and we can only hope that these are the first of many green shoots of recovery that we will see in 2021. Whatever happens, let's hope this year doesn't end in Tiers.

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NEW YEAR NEW OPPORTUNITIES NEW CONCERNS

THE EU TRANSITION concluded on December 31, 2020, ending the ‘four freedoms’ of movement of labour, goods, capital and services. It’s also an end to the customs union, which means that as an independent ‘third country’, we now have a new border model.

The GAR form has had all references to the EU removed; however, until we have a clearer view, anyone wishing to travel to Europe by light aircraft will need to enter via a port that provides both immigration and customs clearances. If you are taking goods over a value of £270 with you there will be additional paperwork, particularly if you intend to return with them. In effect this suspends any VAT/duty payments.

We have not been able to get answers to issues regarding aerodrome points of departure: while Border Force has established Certificate of Agreement (CoA) aerodromes, my understanding is that the movement of goods will need to be via a customs-designated aerodrome. Border Force suggests the use of freight forwarding companies rather than trying to do it yourself; more information can be found at gov.uk.

The rules for the Channel Islands and Isle of Man remain unchanged but there are differences with respect to Northern Ireland, and I foresee an impact here for airshows and events. The frustrating thing is that the Government’s own officials do not even have all the answers. We are invited to submit questions seeking clarification but it is recognised that the new system will, in the short term, be more complex and more burdensome – both financially and administration-wise.

The Government announced last year that it would be making additional funding available for aerodromes that were installing LPV approaches. These aerodromes need to have an EGNOS

Working Agreement (EWA) which provides a level of quality in respect of an EGNOS (European Geostationary Navigation Overlay Service) signal. The CAA recently wrote to these aerodromes to inform them that if the UK cannot reach agreement with the EU regarding access to EGNOS by June 21, they may no longer offer these types of approaches. This is part of a larger issue surrounding Position, Navigation and Timing (PNT) as other activities also rely on GNSS accuracy.

I have heard it said that we can use LNAV/VNAV; however, these approaches can only be flown where the aircraft has barometric altimeters – which are not widely used in GA aircraft (GTN 750s have a £40,000 price tag).

Furthermore, CAP 1616 bans the use of GNSS for operations that do not arrive at a licensed aerodrome.

EGNOS

EGNOS is the space-based GPS/Galileo augmentation system developed by Europe. It is eventually intended to remove expensive-to-maintain ground-based nav-aids such as VORs and NDBs. We therefore have a concern about the impact that this may have on NATS’ ability to rationalise its ground based infrastructure. The Cabinet Office has a specialist advisor on PNT issues who has been speaking to AOPA technical expert Ken Ashton, who in turn has been trying to stress the importance of the need to reach an agreement with the EU.

With regard to the emerging surveillance picture, the UK Government put in place funding in order to help increase equipage rates. The CAA had been discussing a mandate being in place by 2024; however, following recent discussions, it appears that the date is no longer considered a priority.

The CAA is also talking about

making changes to the way in which it regulates GA and has conducted a consultation (more like a survey). I spoke with the CAA and explained that I felt the approach it had taken was the wrong one – for example, the opening questions referred to age and sexual orientation! A number of pilots asked me what this has to do with the future of UK GA – and therefore did not bother to complete the survey. Another question related to whether individuals felt they had an opportunity to get their views across to the CAA – clearly not if people were put off at the very beginning of their questionnaire!

We want the CAA’s fees and charges to be reduced, which may mean changing regulations. However, the type of GA that AOPA represents is mostly at the certified end of the market, which is linked to the ICAO standards. Any changes that can be made here need to keep in mind those Standards and Recommended Practices (SARP) we require if we want to fly outside of the UK. The CAA has made a commitment not to ‘gold plate’ the ICAO standards which impact all areas from airspace to equipment, pilot licences and training through to continued airworthiness.

For operations below these ICAO standards it is possible for aviation activities to take place within the airspace of that state, but one of the advantages of EU membership was the ability for sub-ICAO aircraft and pilots to operate freely across the 27 member states. In order to continue these privileges, the UK may need to reach a separate agreement as it now operates as an independent ‘third country.’ It may also mean that the EU and EASA would require us to remain in step with EASA rules and demonstrate compliance through an audit process, although at this stage we just do not know. It’s too early to tell – but I am sure we won’t be able to have our cake and eat it.

"While there are still over 1,000 infringements each year, the good news is that the serious risk-bearing infringements have seen a reduction – but we still need to do more"

So, until these (and other) questions are answered, it will be difficult to see just how much change the CAA and DfT will be able to make. The ICAO SARP is not law in itself but it becomes law when it is enshrined in national legal systems. ICAO also audits the CAA against these standards for compliance. Given the different types of operations, it will be difficult to make sweeping changes; after all, commercial air traffic also uses the airspace and aerodromes and we do not want to inadvertently introduce new restrictions by amending standards. There will be a lot of discussions to come but no overnight changes because, as we all know, change always takes time.

INFRINGEMENTS

Airspace infringements remain one of the CAA's areas of focus and it is looking at how it can improve the way they are dealt with by following a 'just culture' model. I raised a concern over the way MORs have been viewed by both individuals and by the CAA. The concern revolves around the potential safety impact if individuals were not willing to complete an MOR for fear of prosecution. I make the point that MOR reports cannot be used as evidence in a court – either to prove guilt or innocence. It is very important that the CAA maintains the integrity of the MOR system if we are to maintain a culture of open reporting in the UK. However, while there are still over 1,000 infringements each year, the good news is that the serious risk-bearing infringements have seen a reduction – but we still need to do more.

Simultaneously, there is growing concern over the increase in Airprox events. The latest instance I have seen involved two GA aircraft; one descending in IMC while receiving a Basic Service and another flying just below the base of the cloud – they were ten seconds from impact. While this is still a 'live case' I cannot say more – other than be careful!

AIRSPACE MODERNISATION

Airspace modernisation development is hampered by the current pandemic. The airline industry is substantially down on movements, which means its income is also reduced. The ability to invest in Air Traffic Management (ATM) and aerodrome improvements will also have impacted the Airspace

Change Organising Group (ACOG) agenda. The Group's CEO approached all aerodromes serving commercial air traffic, only to be told by those airfield managers that they had no funds to invest in changes as they were concerned about their very survival in the current climate. IATA has reported that 95% of the world's airlines have just three months' capital before they would face collapse – so I see the development of the airspace slowing for the immediate future.

The one exception seems to be for drones – and we can see how there are many applications for temporary restricted airspace to allow Beyond Visual Line of Sight (BVLOS) drone operations. This is not a viable situation in the long term as the intention is to move towards an autonomous traffic management system in lower airspace using Unmanned Traffic Management systems (UTM). One plan is to start in urban areas, but as drones will want to operate in all airspace, there will be a need to thoroughly integrate both ATM and UTM systems.

Although I think this is still a way off, the foundations are being put in place today and the development of this technology is supported by governments worldwide as it is seen as part of the fourth Industrial Revolution. Therefore as we look at the modernisation of airspace, this group cannot be ignored and we have to find a way to safely and efficiently integrate all airspace users.

I am sure you will have seen how we have engaged with both the DfT and CAA on a regular basis during the lockdowns, so I don't plan to repeat these items here. The pandemic is having a terrible impact on society and the Government's requirement is to 'Stay Home' – only going out for essential reasons. The list of permitted reasons for leaving home can be found on the gov.uk website and in the guidance sent out by the DfT.

Needless to say, AOPA continues to engage with Government ■



Courtesy of the CAA

Airspace modernisation remains a priority but the pandemic may well cause this to slow in the immediate future.



M Robinson

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



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WORDS Malcolm Bird **IMAGES** Steve Bridgewater

PROJECT TEL – WE ALL HAVE A PART TO PLAY...

Can your aircraft run on unleaded fuel? Malcom Bird introduces 'Project TEL' and asks why so few of us have shifted to UL91

FROM THE impact of burning fossil fuels in power stations and cars to the carbon footprint of the food we eat, everyone will be aware of the increasing scrutiny on our emissions across all aspects of our modern-day lives.

The piston engines that power the majority of our aircraft are not exempt and it is worthwhile considering how we can lessen our footprint. Whilst there is good progress being made on electric-powered flight, it will take time to mature. In the meantime, there may be more we can do to help improve the current situation. But for this, we need to be aware of what options are available, their accessibility and suitability.

PROJECT TEL NEEDS YOU!

Can you help? To provide the DfT with the information it needs before actions can be taken, Project TEL needs to gather and process a lot of data. We are looking for members who might have a few hours available to assist with this activity. If you think you might be able to help, please drop a line to malcolm@aopa.co.uk

LOW LEAD

At most airfields today, the fuel on offer is 100LL. LL stands for 'Low Lead' but it still contains lead: low in comparison with previous aviation fuels but amazingly high in relation to the automotive options that stopped using lead (in the UK) years ago. Having recognised the environmental impact of lead, we really do need to consider potential options and optimise alternatives.

Unleaded aviation fuels have been around for several years but despite much research, a full replacement for 100LL at a reasonable cost has not yet been developed (and, crucially, certified). Hence it is not yet possible to simply move all piston-engine aircraft from

100LL to a single unleaded aviation fuel.

This means that an aircraft operator has to know which unleaded fuels, if any, their aircraft can use safely and then find the places that make it available. Needless to say, this is not necessarily easy.

NO LEAD

AOPA, along with the Department for Transport (DfT) and the Light Aircraft Association (LAA), has been looking into this problem. Initial estimates are that over 65% of the piston-engine aircraft registered in the UK could currently run on the unleaded aviation fuel UL91.

If all these aircraft switched to unleaded, there would be a considerable reduction in the use of Tetra Ethyl Lead (TEL) by our fleet.

However, as many operators are unsure if their aircraft can use the fuel – and UL91 is still not that common – very few of those aircraft actually currently run on it.

AOPA is now working with the DfT, the LAA and many other aviation organisations to see if the situation can be improved in any way.

Our aim is to create a definitive list of aircraft that can use unleaded aviation fuel, make it easy for operators to know when they can use it and find means of increasing the availability and attractiveness of the fuel. We are calling this Project TEL and we need your help. As you'll see in the accompanying box, we need manpower – can you spare a few hours some time? ■



Leaded 'four-star' petrol was withdrawn from sale on garage forecourts in 1999 and the product that replaced it – Lead Replacement Petrol (LRP) – went the same way in 2003 as sales were so low. Yet we still burn 100LL in our aeroplanes.

WORDS David Chambers

MEMBERS WORKING GROUP

THE MWG meeting on January 23 was our third Zoom meeting to date and was well attended.

Martin Robinson talked through a number of issues he is involved with and members had the opportunity to ask questions. He remains keen to hear about regulatory aspects that AOPA should be encouraging the CAA to change, now that we have left EASA. You can email info@aopa.co.uk, including anything you may already have shared on the CAA survey. Pauline Vahey also reported on AOPA's office move, which so many have worked on for the last year.

John Walker presented his current-status report of GA airfields. It was disappointing that the CAA did not comment or object to development proposals at Retford or Gloucester. Philip Church highlighted that we need a national plan of protected airfields to ensure a critical minimum throughout the country. The concern is that these would become the default, and put those not on the list at risk.

REGULATORY UPDATE

There is a lot to keep track of and we are thankful that Nick Wilcock keeps up to speed with the detail on our behalf. While the UK can (and will) diverge from EASA regulations, it is important that we remain ICAO compliant so that our licences and aircraft can continue to fly worldwide.

What were previously known as EASA aircraft are now called Part 21, and

those on the G-Reg can be flown VFR within the UK by pilots with a UK-issued Part-FCL licence and a Personal Medical Declaration. It doesn't matter if it has EASA written on the licence.

Those flying abroad will require at least a Part-FCL PPL and Class 2 Medical – a UK LAPL or lesser medical are insufficient.

MAINTENANCE

A few members are having difficulty arranging their annual inspections during the lockdown. Some airfields are closed and won't allow access even for ground maintenance. Others do not permit flights, preventing a ferry flight to the maintenance organisation. This may require a special ferry permit to be arranged once airfields reopen.

MENTORING

The AOPA mentoring scheme has been little used in recent years. Those involved in setting it up recognise that it is no longer active and it was agreed to recommend that it be closed down. Perhaps AOPA could instead raise the profile of its Wings scheme, which sets out a clear pathway for private-pilot development.

All members are welcome to participate in MWG meetings – you can just listen and observe if you wish. Email David.Chambers@aopa.co.uk to register for our next meeting (which lasts three hours) on Saturday March 20, 2021. ■



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WORDS John Walker

THE LATEST NEWS ON UK AIRFIELDS UNDER THREAT

As the GA world enters 2021 we provide a complete update on UK airfields under threat

ACROSS THE UK, there are airfields currently under imminent threat from developers and local councils. As we enter a new year it seems apt to conduct a complete review of the airfields in jeopardy.

ANDREWSFIELD

Braintree, Colchester and Tendring Councils' joint proposed Local Plan for North East Essex is being modified to delete an area adjacent to Andrewsfield aerodrome earmarked for a large garden community. This is because the Planning Inspector considered the original proposal to be unsound. Aerodrome listed by Braintree District Council on June 19, 2020 as an Asset of Community Value.

BOURN

A plan adopted by South Cambs District Council on September 27, 2018 earmarked the site for 3,500 homes in 2031. A planning application has been submitted.

CAMBRIDGE

Marshall Group will be vacating the aerodrome by 2030 and has signed an option to lease land at Cranfield with Wyton being considered as an alternative. The company has stated its intent to put the site forward for development as part of the next Local Plan from 2030.

CHALGROVE

Site included in the South Oxfordshire District Council 2034 Local Plan adopted on December 10,

2020 for a 3,000-home development with a new runway for Martin-Baker Aircraft (MBA) operations, for which development a planning application has been submitted. Homes England (HE), the landowner, has stated that it will use Compulsory Purchase Order (CPO) powers if negotiations about the development with MBA (the tenant) are unsuccessful.

CHILTERN PARK

The landowner has given notice to the leaseholder and aerodrome operator, Chiltern Airports, to vacate the site, resulting in Airports seeking an alternative site. The aerodrome was listed by South Oxfordshire District Council on September 11, 2020 as an Asset of Community Value.

DEENETHORPE

Site accepted under the government's Garden Village scheme for development with up to 1,500 homes. East Northamptonshire Council approved the site masterplan on October 15, 2018 and a planning application for the development is expected soon.

DUNSFOLD

Planning application for mixed use development with 1,800 homes on site was approved by Waverley Borough Council on December 14, 2016 but subject to a public inquiry, the result of which was central government approval for the application on March 29, 2018. Protest groups appealed these decisions in the High Court but the challenges were rejected

"The landowner has stated that it will use Compulsory Purchase Order powers"

on November 5, 2018. The development has been granted Garden Village status.

ELVINGTON

York City Council's definitive Local Plan was submitted for Public Examination on May 25, 2018 and public hearings commenced on December 10, 2019. Includes up to 3,330 homes occupying the middle section of the runway.

FAIROAKS

Planning application for a 1,000 home Garden Village on site was withdrawn on February 10, 2020 but is expected to be resubmitted later. An alternative 'Fairoaks 2020' scheme that retains the aerodrome, put forward by a local opposition group, has been included in proposals from Unity Land LLP. Public consultation on Surrey Heath Borough Council's draft Local Plan ended on July 20, 2018. It stated that "development at Fairoaks Airport should be guided by a development brief/masterplan."

HALFPENNY GREEN

MCR Property Group, the site owner, has apparently put the aerodrome up for private sale at an asking price of £7.5 m. In September 2018 South Staffordshire Council approved a Site Allocation Document expanding on the previously adopted Core Strategy within the Local Plan. This states that the aerodrome is allocated and protected for employment purposes. A planning application (yet to be validated) has been submitted

for the construction by MCR of 112 homes on southwest corner of site and aerodrome improvements, including three new hangars.

LANGAR

The airfield, currently occupied and operated by British Parachute Schools, was sold in January 2019 to the owner of Tollerton (see below).

LONG MARSTON

The aerodrome is designated in Stratford-on-Avon Local Plan adopted Core Strategy for housing and has government Garden Village approval for which a planning application has been submitted. The developer is Cala Homes in conjunction with the site owner (see entry for Wellesbourne below).

MANSTON

On July 9, 2020, the Secretary of State approved a Development Consent Order (DCO) to River Oak Strategic Partners (the site owner) for the aerodrome as a Nationally Significant Infrastructure Project. A Judicial Review Hearing challenging the decision was due to take place in February 2021 but has been cancelled in the expectation that the DCO will be revoked pending the Secretary providing additional information in support of his decision. On July 9, 2020 Thanet District Council adopted its 2031 Local Plan that safeguards the use of the site as an aerodrome.

MAYPOLE

Aerodrome sold for non-aviation use with resident aircraft owners given notice to quit by January 11, 2021.

MONEWDEN

Was due to close by Christmas 2020 with owner citing the main reason being the "constant gripes from the council regarding planning and moaning from the local few." However, it will remain open.

NORTH DENES

The aerodrome (Yarmouth Heliport) with two grass runways is for sale having been disused since 2015 on the cessation of North Sea helicopter operations.

NOTTINGHAM CITY (TOLLERTON)

With the support of the landowner, the site and adjoining land has been earmarked for up to 4,000 homes in a Local Plan adopted by Rushcliffe Borough Council on October 8, 2019. A planning application for development proposals to the north and east of the aerodrome has also been submitted.

OLD SARUM

The site owner's planning application for housing development and ten additional hangars was refused on appeal in a Planning Inspectorate decision letter dated July 11, 2019. The owner applied for a Judicial Review of this decision but in July 2020 the High Court refused to overturn it. A multi-year agreement was reached with effect from February 1, 2020 for the site to be used for parachuting. The aerodrome is now unlicensed but open with prior agreement.

PANSHANGER

HE has bought the aerodrome site from Mariposa Investments. A public consultation by Welwyn Hatfield Borough Council into providing additional housing sites for the Local Plan ended on May 1, 2020. The schemes preclude a realigned grass runway to the north of previous RWY 11/29 proposed in the current draft of the Local Plan. A planning application to re-open the aerodrome has been submitted.

PETERBOROUGH (SIBSON)

Huntingdonshire District Council submitted an unsuccessful bid for a 2,500-home Garden Village on site. The council subsequently

withdrew its support for the proposal but the site is still listed in the council's Housing and Economic Land Availability Assessment.

PLYMOUTH

FlyPlymouth, a local social enterprise aerodrome support group, plans to reopen the aerodrome and start regional airline services. Sutton Harbour Group, the site leaseholder, has proposed a mixed-use development although the adopted Plymouth City/South-West Devon Joint Local Plan retains the site for aviation use at least until the first five-year review of the adopted Plan.

REDHILL

Tandridge District Council public consultation on four potential Garden Village sites (including Redhill) ended on October 9, 2017. The definitive 2033 Local Plan submitted for Public Examination on January 18, 2019 with hearings ending on November 28, 2019 has ruled out the site for a Garden Village and allocated it protected status as an 'Important Employment Site'. The current draft Tandridge Local Plan earmarks the aerodrome for employment purposes and notes that the site is within the Green Belt with a high risk of surface water flooding. Part of the site is within the boundary of Reigate and Banstead Borough Council whose Local Plan proposal to safeguard the site for housing has been rejected by the Planning Inspector.

RETFORD/GAMSTON

Planning application submitted by Thatcham Research to Bassetlaw District Council to convert five hangars into a vehicle testing facility and for use of the runway for aircraft and autonomous vehicle testing. A campaign to save Gamston has been launched by users of the airport and small local businesses who rely on it for their livelihoods. It has

established a crowdfunding page to raise funds for the campaign, which it says will fight the decision to displace nearly two-thirds of the aircraft based there and impact on five flying schools.

THURROCK

Thurrock Council has issued a 'Scoping Opinion' to the landowner's agent regarding an Environmental Impact Assessment for development of 750 houses, a medical centre and employment units on aerodrome site.

WELLESBOURNE MOUNTFORD

Stratford-on-Avon District Council's Core Strategy stated policy is to "Retain and support the enhancement of the established flying functions and aviation-related facilities at Wellesbourne". The council has rescinded the owner's permitted development rights and has initiated negotiations for an agreed purchase of the site whilst also taking CPO action to acquire the site, for which £1.125 million has been set aside in the council's 2019/2020 budget. Under an MoU dated August 30, 2019 between the council and the site owners, the CPO action has been suspended for up to a year (which period has now been extended) to allow the owners to propose limited development of the site whilst retaining the aviation facilities, with some of the tenants being offered continued occupancy during the period of the MoU.

WYCOMBE AIR PARK

The site leaseholder (Helicopter Aircraft Holdings Ltd) has agreed new leases with the landowner, Wycombe District Council (now part of the new Buckinghamshire Council). The council's adopted 2033 Local Plan provides for an industrial complex on the southwestern part of the site requiring shortening of RWY 35 and relocation of gliding activities to the north. ■

WORDS Simon Keeling **IMAGES** Steve Bridgewater

WEATHERLORE, THE TRUTH BEHIND THE PROVERBS

Is a 'red sky at night' an aviator's delight? Does 'rain before seven' really mean it will be 'fine by eleven'? Aeronautical meteorologist Simon Keeling takes a look at the ancient art of 'weatherlore'

EVEN as a professional meteorologist there have been occasions when, with access to as many as ten atmospheric models, I've still been unsure as to the kind of weather that might ensue. I don't mind admitting that on some occasions I've looked up and recited "red sky at night, shepherds' delight"!

During my forecasting career there have been times when I've been without charts and with only my own observations to hand (and a bit of weatherlore) I've been able to produce a forecast of sorts.

"There must be some truth in weatherlore, despite the fact that some of it is pretty superfluous!"

The best thing about the 'red sky' proverb is that it does actually work (at least, on occasion). Think about it – generations of our ancestors studied the weather far more closely than we do now. If it rains, we will mostly put up an umbrella and think no more of it. However, in day gone by, summer rainfall might have meant darker nights, ruined crops and a winter of food shortages. Weather was constantly being observed, and mental notes were made of any changes in the behaviour of animals and plants as

well as the appearance of the sky. These observations were passed down through generations and were all that our ancestors had to help them predict the weather until around a century ago.

Therefore, there must be some truth in weatherlore, despite the fact that some of it is pretty superfluous! So which are the good points?

APPROACHING FRONTS

Naturally, our first stop has to be our 'red sky' proverb. This is probably the best known weather saying and (I



CLOCKWISE FROM MAIN The windsock can tell you a lot more than just the direction of the wind. Red sky at night ... but does that mean it will be flyable tomorrow? Rain, rain, rain – if only there were a way we could know when it would clear ...

believe) has its origins in the New Testament, quoted in Matthew Chapter 16: "When it is evening, ye say, it will be fair weather: for the sky is red. And in the morning, it will be foul weather to-day: for the sky is red and lowring."

This is a saying that 'works', but why? Well, in the UK, most of the weather moves from west to east. In the morning, as the sun rises to the east, it shines on any high cirrus cloud that may be to the west and scatters the red light associated with the moisture in the cloud. This is perceived by the observer as a red sky. Generally, cirrus clouds are the first to be seen ahead of an approaching Atlantic weather system, and consequently may be the first signs of a rough day ahead.

In the evening the reverse is true. As the sun sets in the west, it shines on clouds located to the east. Again, the red light is scattered and observed on the ground. However, as the clouds move to the east, the rain will have already passed, leaving dry weather ahead.

Of course, there are occasions – particularly during the summer months – when high level cirrus may be part of a firmly established area of high pressure. This confirms that you should really only use weatherlore as an alert, rather than as an actual forecast. If you do see a red sky in the morning or evening, just keep watching the skies for an hour or so and monitor the evolution of the clouds.

RAIN, RAIN, RAIN

The question we all want answered is, 'When will the rain stop?' Modern forecasting techniques allow us to predict, with a reasonable amount of success, how long a particular band of rain will last. However, in order to make that prediction, we need access to the internet or a human forecaster. In times when neither is available, it's down

to proverbs again. One of the best known is: 'Rain before seven, fine by eleven'.

This proverb refers to the usual longevity of an area of frontal rain. I always think, though, that the typical rain band lasts for around five to six hours and that perhaps the proverb should read "Rain before Seven, Fine by One." Somehow, it just doesn't have the same ring about it.

Having said that, it's a useful rule of thumb to follow: as indeed is your observation of how long rain takes to arrive, from the spotting of the first prefrontal cirrus. If this process takes – say – three hours, then the system may be moving quite fast and so any rain may last a shorter time. Should the system take many hours to arrive, then the rain is probably here for a few hours yet. How about this version, then: 'Rapid the Thickening, Short the Soaking'? After that effort, you can see why I am a meteorologist and not a poet!

The direction the rain comes from has also been observed and noted, and this again works well on occasions such as: 'Rain from the East, Two days at Least.'

This is another good saying to use in the British Isles. The easterly wind is usually due to high pressure over Scandinavia, which is typically slow moving. If clouds and rain set in from that direction, then any change in the weather is likely to be slow. Consequently, the rain may not be heavy but will continue for several days – usually until the wind changes direction, or an Atlantic weather system manages to break the pattern.

If the wind is in the south, try: 'Rain from the south presents the drought; but rain from the west is always best.' Underlying this proverb is the knowledge that rain coming from a southern quarter is generated over the warmer climates of France and southern Europe. In summer and autumn months

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

9–10 March 2021

6–7 July 2021

23–24 November 2021

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 07754 780335. 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.



Red sky in the morning. There are few sights more beautiful than sunrise from the air.

the southerly rains are usually heavy and thundery. They lead to rapid downpours and thunderstorms.

However, if the rain comes from a westerly direction, it is brought about by an Atlantic weather system. These tend to bring steadier rainfall over several days so the rain that falls courtesy of the westerly wind is steady and persistent.

NORTH WIND DOTHS BLOW

Perhaps the weather phenomenon of most interest to aviators is the wind – and there are literally hundreds of weather sayings associated with it. The most apt of these is one from Francis Bacon: 'Every wind has its weather.'

Again, this may seem obvious, but it is true. You can glean so much information about the weather simply by looking at the area where the wind has originated. You can tell how much moisture the air at any location may be able to hold – for instance mild air can hold more moisture than cold

air – so it is safe to assume that southwesterly winds are more likely to bring heavy rain.

CROSSWINDS RULE

The crosswinds rule has, to some extent, become modern weatherlore. The rules predict whether the weather will improve or deteriorate. I am including Buys Ballot's Law in this section. The law states: 'Stand with your back to the wind in the northern hemisphere; low pressure will be to your left.'

Buys Ballot's Law is useful if you have not seen a synoptic chart for a while and need to gather some assessment as to the position of pressure systems. It is also very useful when low pressure is expected to pass through your location. It can tell you if the low has passed, and its relative position at the present time.

Now for the rules 'proper'. The first relates to a deterioration in current conditions. Stand with your back to the wind, and if the

"Buys Ballot's Law is useful if you have not seen a synoptic chart for a while"

upper winds are coming from your left (you can estimate this by looking at the cloud movement), the weather will most likely deteriorate.

The second rule relates to an improving weather. Stand with your back to the wind, and if the upper winds are coming from your right, the weather will most likely improve.

Finally, stand with your back to the wind, and if the upper winds are ahead or behind you there is likely to be no change.

The crosswind rules do actually work, and in the absence of actual weather observations or forecast data, they are probably the most reliable of weather sayings. Weatherlore can prove useful and has been passed down through the centuries.

I hope that through this article you've learnt some sayings that you didn't know, and perhaps one day, when you are stuck at a far flung airfield with no meteorological data, you will remember one and it proves correct. ■

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AOPA NEWS

After a hiatus in 2020, hopes are high that the GA world can once again convene in Friedrichshafen in April.



CREDIT: Messe Friedrichshafen

FRIEDRICHSHAFEN IS GO

Organisers of the Aero Friedrichshafen exhibition in Germany remain confident that the popular trade show will go ahead – but has postponed it until July

AS THESE words were committed to print in late January, the organisers of the annual AERO Friedrichshafen exhibition announced that the event would be postponed to July 14-17.

After a one year hiatus due to the coronavirus pandemic, the German trade was due to take place on April 21-24. "We started the new year with confidence and hope," explained Roland Bosch, Head of AERO. "Metaphorically speaking, it was clear flying for the first few days, but we now find ourselves faced, once again, with a thick fog on the landing runway." However, Project Manager, Tobias Bretzel, is confident that the

trade show can take place in a well-organised manner, in compliance with the relevant measures such as compulsory masks and mandatory online ticketing systems.

Innovative aircraft concepts and alternative propulsion systems have long been one of the focuses of the show. As such, 'Sustainable Aviation' will feature highly in 2021. Friedrichshafen Airport, which is adjacent to the exhibition grounds, is currently trialling a project to assess the possibility of implementing charging stations for electrically powered aircraft: the objective is to have charging stations in operation by the start of the event.

"The 'Sustainable Aviation' theme will feature highly in the show at Friedrichshafen"

AERO Friedrichshafen is one of the few trade shows to feature a complete spectrum of aircraft – from civilian drones, gliders, ultralights, kitplanes and gyrocopters, to helicopters and light aircraft with piston engines or turboprops through to bizjets.

Elsewhere, the organisers of the AERO South Africa event are planning to hold

the show from July 8-10, 2021 at Wonderboom Airport in Pretoria. The board of the Experimental Aircraft Association (EAA) is also pressing on with plans for the 2021 AirVenture show at Oshkosh, Wisconsin between July 26 and August 1.

EAA CEO, Jack Pelton, said: "There will be AirVenture in 2021, as it is so important for all of us in every segment of the aviation community.

"While it's still too early to know exactly what everything will look like for the event, it's important to have AirVenture in 2021 – which, coincidentally, is the 100th anniversary of the birth of the late EAA founder Paul Poberezny." ■

EASA CERTIFICATION FOR THE LATEST BRISTELL B23

CZECH-BASED aircraft manufacturer Bristell has received EASA type certification for its all-new Bristell B23 – which it refers to as its ‘next-generation aircraft’. The B23 has been designed in response to feedback from more than 500 customers of its previous model, the Bristell LSA. The new aircraft is longer with larger tail, flaps and vertical stabiliser as well as a 120 lit fuel tank.

The B23 was designed for flying school use and with this in mind, it has been constructed with a 130 cm (51 in)-wide cockpit to accommodate both instructor and student in comfort. Power comes from a 100hp Rotax 912S, which turns a three-bladed,

hydraulically adjustable MT propeller. According to the manufacturer, the composite airframe has also been optimised “for long life and has a robust structure, which makes it particularly well suited to flight training.”

The B23’s maximum

take-off weight is 1,653 lbs (750kg) and it has an empty weight of 981 lbs (445 kg), giving a 672 lbs (305 kg) payload. It will ultimately cost €199,000 but Bristell is offering a €20,000 discount on the first 30 airframes sold in 2021. ■



The Bristell B23 meets night-VFR requirements and can be upgraded to meet IFR requirements.

AOPA NEWS HIGHLIGHTS

The annual Aerobility Ball took place ‘virtually’ on November 28 and raised £51,417 for the Blackbushe-based charity. The ball normally takes place at Heathrow and raises funds enabling the charity to offer disabled people the opportunity to fly an aeroplane.

The Honda Aircraft

Company has established a second HondaJet flight training centre, at the FlightSafety International facility at Farnborough, Hampshire. The ‘Farnborough Learning Centre’ provides initial and recurrent pilot training, as well as a wide variety of other courses designed to meet the needs of HondaJet operators.

Until the end of March, London Southend Airport is offering pilots cut-price circuit training. The airport is offering five or more circuits for just £5 (MTOW 2.4 tonnes) with slots available between 7am and 11pm. Free aircraft parking for 24 hours is also included but circuits and parking must be booked in advance with PPR via Southend ATC.

A pilot pleaded guilty to landing (and then taking-off) at RAF Valley in Anglesey last May despite the aerodrome being closed. The pilot flew a Pilatus PC-12 from Fairoaks to Valley “to visit the beach.” He was fined £3,400 plus £750 costs and a CAA Spokesperson later said “This was a case of poor pre-flight planning. A routine check would have shown that RAF Valley was closed.”.

PIPER DELIVERS CERTIFIED PILOT 100i TRAINERS

PIPER AIRCRAFT received FAA type certification for the Pilot 100i on December 15 and had delivered eight examples to launch customer, American Flyers, by the end of 2020.

The aircraft was

announced at the 2019 Sun ‘n Fun airshow in Florida and is produced specifically for flying schools. Piper claims the new Pilot 100i aircraft offers “lower operating costs that can result in

substantially lower priced initial training courses.”

Standard instrumentation includes the Garmin G3X system, which offers the advantages of a glass cockpit without the financial outlay associated with more complex avionics fits. The interior is also said to be designed to withstand the rigours of flight training and the Pilot 100i is powered by the 180hp Lycoming IO-360-B4A, giving it a cruise speed of 128 kts and a 522nm range with 45-minute reserve.

The company is offering a factory-new, IFR-equipped Pilot 100i with digital autopilot to flying schools for under \$300,000. ■



Piper’s trainer range is now: Pilot 100i, Archer TX, diesel Archer DX, Arrow (retractable) and Seminole twin.

Embraer's electric-powered crop duster is due to fly later this year.



Embraer

TOGETHER IN OUR ELECTRIC DREAMS

The AOPA News team gets plugged into the latest developments

CRANFIELD-BASED ZeroAvia has secured £12.3m of backing to develop hydrogen-electric aircraft. The funding comes via the UK Government's Aerospace Technology Institute programme and follows ZeroAvia's world-first flight of a commercial-grade hydrogen-electric aircraft at Cranfield in September 2020. The hydrogen fuel cell powertrain used in that six-seat Piper Malibu M350 will now be developed to power larger aircraft such as the Cessna Caravan or DHC Twin Otter. The so-called HyFlyer II project aims to complete a 350 mile (563 km) hydrogen-electric flight by a 19-seat aircraft by early 2023 and has also sourced a further £16m in venture capital funding.

The announcements of the HyFlyer II programme and Series A investment came days after British Airways announced a partnership with ZeroAvia to speed up the airline's switch to hydrogen-powered aircraft.

Meanwhile, Californian company Ampaire has collaborated with Hawaiian Mokulele Airlines to complete the first demonstration of its hybrid-electric Electric EEL on an established airline route.

The Electric EEL is a converted Cessna 337 Skymaster powered by a rear-mounted 310 hp Continental IO-550 engine and a 160 kW (119 hp) electric power unit in the nose. The aircraft carries its batteries in a pod beneath the fuselage. For the Hawaii demonstration, the aircraft

made a 56-mile (90km) round-trip flight from Hawaii's Kahului Airport to Hana and back on a single charge. Ampaire then flew the route regularly as part of a month-long demonstration designed to showcase "electric aviation's potential."

According to Ampaire, the Electric EEL can generate fuel and emissions savings of up to 50% on shorter regional routes (where the aircraft's electrical propulsion unit can be run at high power settings)

"Electric EEL can generate fuel and emissions savings of up to 50%"

and generate savings of about 30% on longer regional routes. The company is also designing a 19-seat hybrid-electric aircraft based on the popular DHC Twin Otter (to be called the Eco Otter SX) as part of a NASA project.

In other electric flight-related news, Brazilian manufacturer Embraer has partnered with Portuguese energy company EDP to build an electric version of the EMB-203 Ipanema crop sprayer. Ground tests have taken place at Embraer's facilities in Botucatu and the first flight will take place at Embraer's Gavião Peixoto airfield later this year. Embraer and EDP are also collaborating on the STOUT (Short Take-Off Utility Transport) project to



The Electric EEL is a converted Cessna 337 Skymaster powered by a rear-mounted 310 hp Continental IO-550 engine and a 160 kW (119 hp) electric power unit in the nose.



The ZeroAvia Malibu was the first commercial-grade hydrogen-electric aircraft to fly. Funding has been granted to develop a 19-seat aircraft by early 2023.

create a military cargo aircraft powered by two turboprops and two electric motors.

Meanwhile, in Switzerland, the H55 electric powertrain has received investment worth £17 million to help it reach EASA certification later this year. The unit is expected to be used to power the Energic Flight Trainer being developed by Bristell.

Fellow Swiss firm, Smartflyer AG, won a £21,000 prize in December for its work on the SFX1 four-seat hybrid-electric aircraft. The award is presented annually by the Baloise Bank SoBa Foundation to innovative new Swiss products and services. The so-far unflown SFX1 is claimed to have a range of 466 miles (750 km) and is being developed with

series production and EASA certification in mind.

In France, newly recreated Avions Mauboussin is also pressing ahead with plans to construct a range of hybrid hydrogen-fuelled aircraft. The two-seat Alérion M1h and six-seat Alcyon M3c are being built in the spirit of the original Pierre Mauboussin aircraft of the 1930s, which broke endurance and speed records and were created to make aviation accessible to more people.

The prototype Alérion M1h will initially be powered by a 110 hp hybrid electric engine – with electric mode used for take-off and landing and the internal combustion engine employed for cruising. Eventually, a hydrogen-powered turbine will be used

so as to completely eliminate the use of fossil fuels. The first hybrid flight is planned for 2022 with the hydrogen version following in 2024. The Alcyon M3c is expected to follow by 2026.

Closer to home, British start-up Faradair Aerospace has signed up Honeywell, magniX, Cambridge Consultants and Nova Systems to help develop its Bio Electric Hybrid Aircraft (BEHA). The company hopes to have prototype flying by 2024, powered by Honeywell's turbine hybrid electric system, which will run on biofuel.

Finally, the official bidding process has opened for venues interested in hosting races during the Airbus-sponsored electric-powered Air Race E series. The races are due to begin in 2022. ■

AOPA NEWS HIGHLIGHTS

The 2021 New Year's

Honours yielded a good haul for familiar members of the British GA world. John and Amanda Romain were presented with MBEs for their 'NHS Spitfire' charity project and MBEs were also awarded to BGA Chairman Pete Stratten and aerobatic pilot Diana Britten. Meanwhile, elsewhere in aviation, MBEs were presented to Bristol Aero Collection volunteer Oliver Dearden and Kim Lewington from the Fly2Help charity.

The 50,000th PT6

turboprop engine has rolled off the Pratt & Whitney production line. The company reports that there are more than 25,000 PT6 engines in operation at present with over 410 million flight hours accumulated.

The Mahindra Group has

stopped manufacturing the GippsAero (formerly Gippsland) GA8 Airvan utility aircraft but has pledged to continue servicing the existing fleet. Development of the turboprop-powered GA10 variant has also ceased.

Despite coronavirus

disruptions piston aircraft deliveries for the first nine months of 2020 rose 1.4% compared with the same period in 2019. However, figures published by the General Aviation Manufacturers Association show turboprop and bizjet deliveries were both down 27% to 254 and 378 aircraft respectively. Helicopter shipments also dropped 24% compared with the same period in 2019.



The King Air 260 is the latest variant of the familiar turboprop.

Textron

STILL KING OF THE AIR

Six decades on, the Beechcraft King Air keeps getting better and better

ALMOST 60 years after the maiden flight of the Beechcraft King Air, the twin-engined turboprop continues to evolve and – consequently – sell in large numbers.

The latest variant, the King Air 260, was unveiled during December's NBAA Virtual Business Aviation Convention & Exhibition. It features upgrades including Innovative Solutions & Support (IS&S) ThrustSense autothrottles,

a new digital pressurisation controller and the Collins Aerospace Multi-Scan RTA-4112 weather radar system offered in the cockpit as standard. Production of the nine-seat aircraft is already underway with FAA certification and first deliveries expected later on this year.

The announcement comes on the heels of the recently introduced King Air 360,

which features the same enhancements to the cockpit and cabin. The King Air 360, along with the longer-range 360ER version, achieved FAA type certification in October and has commenced shipping.

Among the latest orders for Beechcraft's turboprop family are two King Air 350CERS (the 26th and 27th) purchased for the US Customs and Border Protection Force and a similar aircraft ordered by

the National Oceanic and Atmospheric Administration (NOAA). According to Beechcraft parent company Textron, the latter was modified with dual-sensor ports to allow data collection from multiple onboard sensors at once. NOAA's first 350CER, which was delivered in May 2009, has been used for missions including coastal mapping, aerial survey and emergency response. ■

BELL'S EDAT DEMONSTRATOR DEBUTS

BELL TEXTRON Helicopters demonstrated its EDAT (Electrically Distributed Anti-Torque) aircraft during December's Aéro-Montreal Innovation Forum. The EDAT system is composed of four small fans within a tail rotor shroud in an offset two-by-two pattern. Each of the rotors contains four blades, powered by four separate motors, with the electrical energy provided through

generators driven by turbine engines – reducing noise as well as operational and maintenance costs compared with a conventional tail rotor. No targets for certification or commercial applications have been announced, but the company says it is “dedicated to incorporating greener technologies, including electric and hybrid-electric capabilities.” ■



TextronBell

The Bell 427 demonstrator drives the four motors using dedicated generators in its Pratt & Whitney turbines.



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WORDS & IMAGES: Steve Bridgewater

SAYING "ALOHA" TO A FLYING PARADISE

This year marks the 80th anniversary of the devastating Japanese attack on Pearl Harbor. The editor recalls a trip to Hawaii and the opportunity to retrace the fateful flightpath taken on the so-called 'Day of Infamy'

 **S PACIFIC island paradises go, Oahu – barely 100 miles square – takes some beating. The most populated and vibrant of the Hawaiian islands is home to the world famous beach resort of Waikiki, the**

beautiful city of Honolulu and the historic icon that is Pearl Harbor – but it also offers the visiting private pilot a multitude of opportunities.

The Hawaiian archipelago is the most isolated island group in the world, 2,350 miles from California and 3,850 miles from

Japan. Although flights from the mainland USA typically take five to six hours, the effort it takes to reach this paradise pales into insignificance when you arrive.

ISLAND WEATHER

On the whole the weather conditions in Oahu and Hawaii

(pronounced Haw-Vy-Ee) are excellent for flying. However, the prevalent trade winds – which typically blow at 15 kts on most days – can gust as strong as 20-25 kts at times, so it is advisable to brush up on your crosswind techniques before embarking on any solo flying in the area. That



said, the trade winds invariably blow from the northeast so most airfields on the islands have their runways orientated accordingly.

Thanks to the almost-constant winds and wide-open spaces, VFR flying abounds and the airports are hardly ever fogged in. Seemingly the only restrictions to visibility come (occasionally) from excess sea salt in the air or the regular, but short, rain showers. Typical visibility is in excess of 20 nm below the inversion layer and much further above the haze. There is little variation in the seasons and the temperature fluctuates very little from the annual average of 28 deg C (82F)

ECLECTIC AVIATION

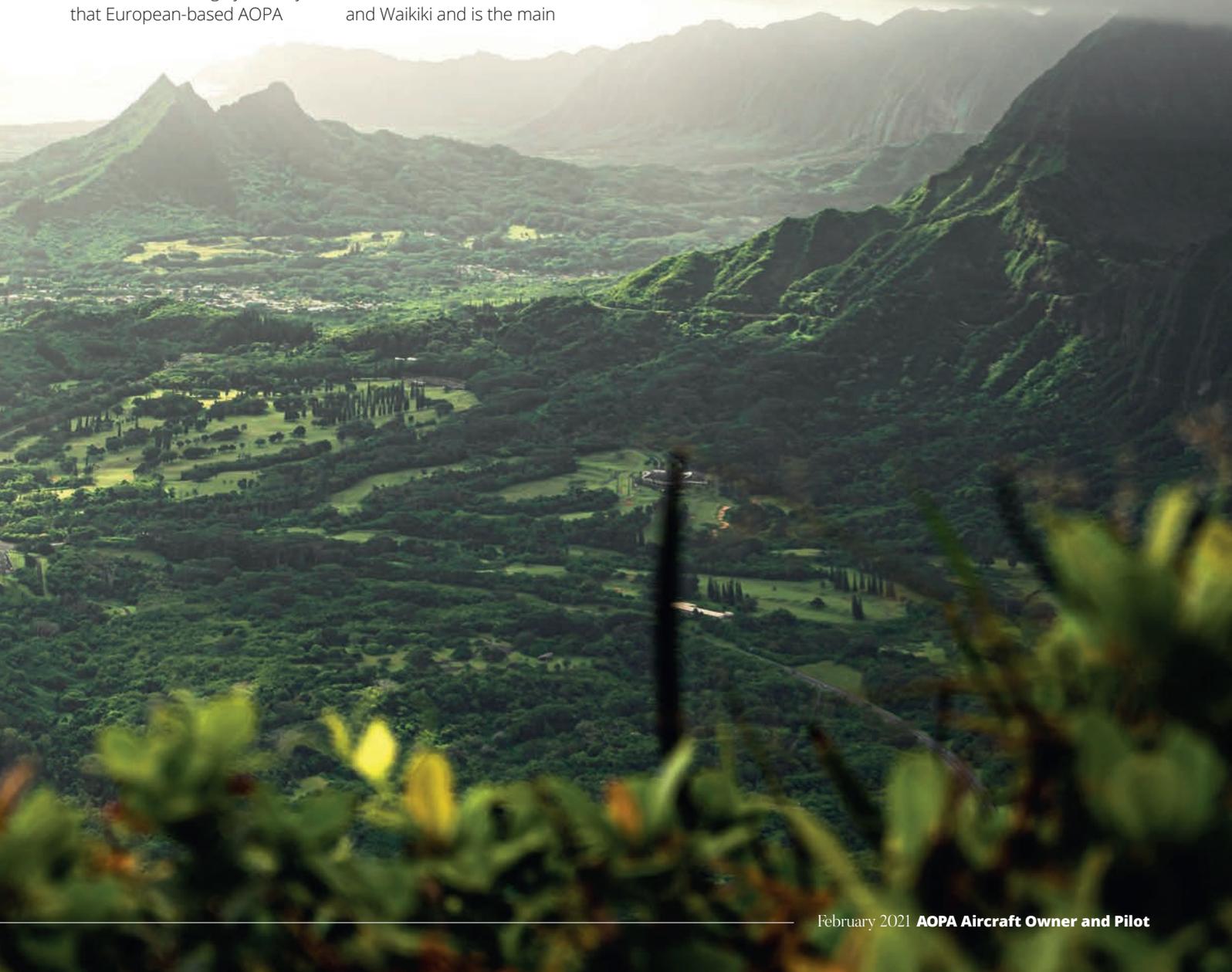
The extreme location of the islands makes it highly unlikely that European-based AOPA

members will fly their own aircraft to Hawaii; but fear not, as there are plenty of opportunities to rent or even just take a sightseeing flight around the area.

There are a number of airfields on Oahu, from Dillingham on the North Shore to Honolulu International to the south, offering all manner of flying opportunities. The islands come under the auspices of the US Federal Aviation Administration (FAA) so if you hold an FAA PPL, you will be able to rent aircraft after the obligatory check flight. Don't forget your medical paperwork, logbook (especially if you want to rent a twin or complex single) and proof of your Biennial Flight Review (BFR).

Dillingham is about a 50-minute drive north of the main tourist areas of Honolulu and Waikiki and is the main

"The trade winds typically blow at 15 kts on most days - but can gust as strong as 20-25 kts at times - so it's best to brush up on your crosswind techniques"



centre for recreational flying. A number of flying schools operate from the airfield alongside more unusual companies such as Paradise Air, which offers flex-wing microlight flights, and Honolulu Soaring.

The latter has been based at Dillingham continuously since 1970 when Bill Star and Sam Bledon came to Hawaii as recent college graduates. With the financial help of Sam's father, they started Honolulu Soaring with just one towplane and one glider; although he is officially retired, Sam still lends a hand with the Oahu glider tours today. The school uses the favourable trade winds to provide glider flights all year round and offers aerobatics as well as sight-seeing and hands-on instructional sorties.

Meanwhile Pacific Skydiving and Skydive Hawaii provide an adrenalin buzz (for those seeking such a thing) through tandem freefall flights.

GROUNDED BY GREED

At the time of my visit to Hawaii, one Oahu operator stood out from the crowd at the top of my

flying itinerary. Pat and Debbie Magie's Island Seaplanes Services, situated on Lagoon Drive in Honolulu, had been trading for many years and owner/chief pilot Pat had more than 40,000 hours logged, with in excess of 33,000 of them in single-engined seaplane types!

However, since my visit the State governors hiked the Magies' annual lease from \$28,000 to \$90,000 – and the couple have now happily retired. Pat's flights were aimed at sight-seeing tourists but, as I was to soon discover, if you are a pilot he was more than happy to turn the experience into a seaplane flying lesson so that I could add the historic Keehi Lagoon to my logbook.

Those with a love of aviation history are in for a treat here. As the long-time operating base for the Pan Am 'China Clipper' flying boats, Keehi Lagoon could be described as the original Hawaiian airport. Today the lagoon is located next to Honolulu Airport (and the co-located Hickam AFB) so pilots work Honolulu ATC even when they are on the water.

"In no time we broke clear of the water and turned directly overhead Honolulu airport terminal!"

I had hoped to fly Pat's big DHC-2 Beaver but as it was unfortunately 'tech' during my visit, we flew his Cessna 206 instead. As the engine burst into life the learning experience began – there are no brakes on water so the aircraft is 'alive' on the surface from the moment the propeller starts turning. "We give way to turtles!" Pat laughed as a giant creature leisurely bobbed in front of me while I tried in vain to taxi us down the lagoon. In all honesty it was all I could do to keep the aircraft heading in the direction I was hoping for – let alone steer around a slow-moving amphibian!

AERIAL TOUR

Soon enough, with more than a little assistance from my mentor, we had N5382X lined up into wind, power checks complete and ready for departure. Honolulu International slotted us into their arrival traffic and I gunned the throttle. We rose onto the step as the wings started to create lift and in no time we broke clear of the water and turned – directly overhead

BELOW CLOCKWISE: The Pink Palace hotel has been a Waikiki landmark since 1927.

Cessna on Keehi Lagoon.

The Pearl Harbor Aviation Museum resides in the hangars which still bear battle scars from the attack.



the airport terminal! It was an almost surreal experience to look down past the enormous floats, still dripping water, and see a myriad airliners lining up alongside military transports and even an F-15 Eagle.

Heading east along the southern coast of Oahu we cruised along Waikiki Beach, past the Aloha Tower and turned around the impressive dormant volcano known to locals as Diamond Head. The small rocky outcrop known as Chinaman's Hat passed our starboard window before we overflew the ranch used in the famous 1970s show *Magnum PI*. Turning inland, Pat directed me towards the volcanic Ko'olau ("Windward") Mountains in the centre of the island. Flying up Ka'a'awa Valley, with the mountain peaks higher than our wingtips, we turned a corner and were greeted by the sight of the magnificent Sacred Falls waterfall. "Look familiar?" Pat asked. It did, but I couldn't place it at the time. "The valley you've just flown up is the one used in the opening scenes of Jurassic Park," he explained as the

waterfall grew ever larger in my windscreen. As the lush green valley sides got narrower, my thoughts turned towards how we would turn around and get back out. Then, as my concern grew, Pat took control; hauling the big Cessna onto its wingtip, into another valley before heading out to sea.

PEARL HARBOR

The rest of the hour-long flight passed by in the blink of an eye as Pat combined flying tips and anecdotes with an excellent narration about the terrain that passed below.

Finally, we descended to 500ft as we headed south towards Keehi. "Can you see those ships in the harbour?" he enquired. There in front of me was an idyllic-looking inland harbour with boats dotted around. "On December 7, 1941 that harbour was full of boats," he explained, "and we are flying exactly the same route and height used by the first wave of the Japanese invaders." This was Pearl Harbor and we were flying through one of the most historic pieces of airspace in the world. The

"We were flying through one of the most historic pieces of airspace in the world."

USS *Missouri* battleship and the monument above the USS *Arizona* slid eerily beneath us as I tried to imagine the chaos that ensued in these skies during the so-called 'Day of Infamy.'

All too soon we dropped the flaps and approached the lagoon to land. Once again Honolulu slotted us into their arrivals traffic and Pat talked me through my first seaplane landing.

With a hop, skip and a jump we bounced off the wave tops for a moment before settling down into the water. That hour takes pride of place in my logbook and the memories are engrained for eternity. If you are looking for an alternative holiday destination you could do far worse than saying "Aloha" to Hawaii – especially in this 80th anniversary year of the attack on Pearl Harbor.

The Magies might have been driven into early retirement, but with flying schools aplenty there's ample opportunity to see this unique island from the air – just don't forget your Hawaiian shirt! ■

BELOW CLOCKWISE: The USS Arizona bore the brunt of the attack carrying 1,777 men to their watery grave.

Ford Island – seen during the approach to Keehi Lagoon.

Hawaiian shirts are not 'compulsory' – but why not?





WORDS Henry Simpson IMAGES Steve Bridgewater (SDB) and via James Hepnar

A RELENTLESS PURSUIT OF AVIATION PASSION

Up and coming airshow and competition pilot James Hepnar talks about his journey into aerobatics and his display-flying aspirations

UP AND COMING aerobatic star and display pilot James Hepnar was 12 when his dad took him to an aviation convention at Earls Court. "I decided there and then that I wanted to fly."

An Air Training Corps flight in an RAF Grob Tutor at 13 meant he was bitten by the bug for aerobatics at an early age, and since that day James has relentlessly pursued his aviation passion.

He started his PPL training a year later at Shoreham, flew solo just after his 16th birthday and obtained his licence at 17. Throughout this time he worked as what he refers to as a 'hangar rat', realising he could "learn a lot about flying from simply cleaning the drip trays and helping in the hangar."

A commercial licence would beckon but whereas most pilots build their hours flying straight and level, James was practicing loops and rolls. "I knew from day one that I wanted to fly aerobatics," he explains. "Nothing beats it – and 16 years after that first flight in the Tutor I still haven't got bored."

He had been 'dabbling' in aerobatics by occasionally

flying a Chipmunk during his PPL course and as soon as he qualified, in 2008, he started flying the Scottish Aviation Bulldog. "I love the Bulldog" he recalls; "I think it's wonderful and although I now have a share in a Chipmunk, the Bulldog deserves credit. It's got more power, you can operate it from shorter strips, and perform avalanches and flicks in it", he adds with an enthusiastic smile.

ENERGY MANAGEMENT

"I was blessed with an amazing instructor [Stuart McKinnon], who taught me all about energy management. Stuart took me under his wing after I got my PPL and once I had got my Flight Instructor (FI) rating, the first flight I got paid for was as an instructor giving an aerobatics trial lesson on the Bulldog."

"I feel that when you're doing aerobatics you feel much more connected to the aircraft in every sense, know every corner of the envelope and that is really satisfying."

James is keen to encourage others into aerobatics and emphasises to people hour building, especially towards an ATPL, that "It doesn't say

"I was blessed with an amazing instructor who taught me all about energy management"

anywhere which way up you have to be!"

Since those early days James has added an enviable list of types to his logbook, starting with the Bellanca Super Decathlon. "It looks like it shouldn't be aerobatic," he laughs, "but it's quite a riot and a very dynamic aircraft. It can do sustained inverted flight, negative pushes and, depending on the fuel tank, avalanches."

James soon started flying vintage types and fondly recalls meeting the Quax group at Paderborn when he was piloting Citation jets in Germany. "Normally people don't like letting young people fly old aeroplanes, but they let me fly their fleet including the [Boeing] Stearman and Klemm 35."

However, his time in

BELOW Taxiing out to display at the Imperial War Museum airfield at Duxford.



Germany would come to a premature end as he was made redundant during the financial crisis. He returned to the UK to fly Cessna twins for the RVL Group at Nottingham East Midlands Airport, which he described as “proper flying, with no autopilot and in all manner of weathers”.

Despite a busy schedule, James still found time to drive to Shoreham to instruct, before a share became available in an Extra EA300 that he used to clean during his ‘hangar rat’ period.

“I couldn’t afford it” he recalls, “but I took a gamble, emptied my savings account and bought into the group. I could barely afford to fly it though!” This gamble reignited his aerobatic career and led to great things.

“Initially it was quite intimidating to fly,” James admits. “The first time I opened the throttle it was insane, like opening the gates of hell, it doesn’t hang about! During that first flight it dragged me around the sky as I tried to keep up with it.”

REMAINING HUMBLE

For the first year, James “just flew” the Extra. “I didn’t have any structure to my flying, but then Diana Britten came along and everything changed.” The renowned display pilot and former British Aerobatic Champion [Ed: who was awarded an MBE in the 2020 New Year’s Honours for services to aerobatics and charity work] became his coach, as he began training alongside Justyn Gorman.

“I really clicked with Diana,” says James, “there’s no bravado, no ego, we are there to do a job and she pushes me to be the best I can be.”

He has flown G-XXTR for five years now but remains humble: “I am by no means the best and my focus is on being safe and building experience. The golden rule of display flying is to display the aircraft, not yourself.”

Airshow regulations have changed significantly during the years following the 2015 accident at Shoreham and in preparation for his move into the display arena, James

“The first time I opened the throttle it was insane; it was like opening the gates of hell!”

began by reading CAP 1724 (the flying display standards document) and CAP 403 (the administrative requirements and guidelines), which he admits can feel “almost like a course in itself.”

These new rules have multiple levels and James initially worked up a ‘standard’ display sequence consisting of loops, rolls, stall turns and half Cubans. However, technical issues with the Extra cancelled his 2019 season so he used the time to create an ‘intermediate’ programme for 2020. These routines are allowed to feature more combinations of manoeuvres; lines can now be inverted and erect on the 45-degree axis.

DISPLAY DEBUT

While it looked for a while as though the entire 2020 airshow season would be a Coronavirus ‘write-off’, a few events took place at both Old Warden and Duxford – and James was able to appear at both venues.

His debut display was performed at Old Warden in

BELOW CLOCKWISE: “Display the aircraft, not yourself.”

The smile that demonstrates a zest for life and a love of flying.

James takes off for his first public display.





August and James is grateful to the resident Shuttleworth Collection for that chance.

"They were the first to take a punt and give me that crucial first opportunity," he explains, "they gave me so much support and I will be forever grateful for that."

A few days later James appeared at Duxford's first 2020 Showcase event. The airfield was familiar to him as the Imperial War Museum and Head of Airfield Operations, Tom Turner, had allowed him to use Duxford for many of his display practices. "Finding a place to practice is a real hurdle for pilots; none of my display flying would have been possible without Duxford's assistance and the continued support and sponsorship of World Aero."

In October, James was back at Duxford for the final Showcase event of the year, but this time he was to debut his new 'advanced' category display. This expands the envelope to include erect and

inverted spins, stall turns with erect or inverted entry, outside loops and flick rolls (up to a maximum of two).

"It was my most challenging display," he candidly reveals, "both the crosswind and upper wind was in excess of 30 kts so I was really fighting to keep position on the display line and the turbulence was horrendous. It wasn't unsafe, it just took a bit of extra capacity – no pun intended."

WHAT'S NEXT?

Currently, outside of aerobatics and aerobatic instructing, James flies the Boeing 737 for a "well-known low-cost carrier out of Stansted" but whenever he gets a spare moment he can be found in the Extra developing his 'advanced' and 'advanced plus' routines in the hope that the 2021 airshow season will be somewhat less hampered by restrictions than the past year.

There are, however, advantages to being the

ABOVE James has shares in this DHC-1 Chipmunk as well as the Extra EA300.

'new kid in town.' In a bid to encourage new pilots into the industry, airshow organisers can allocate 'tyro' slots to those with new Display Authorisations without incurring the same display slot charge by the CAA.

James Hepnar is one of those 'new' pilots putting his time and resources into regenerating an industry. "My next goal is to move into the highest level of aerobatic flying," he concludes. The 'unlimited' category allows all manoeuvres with no restrictions on figures. Beyond that I would ultimately like to fly warbirds, but I am not rushing to reach that stage." Summing up his career to date James says: "No journey in aviation can be taken alone – even when you're taking your first solo there's a lot of people behind you and I have been very lucky with the people who have been supporting me. I will always promote flying – especially to those who think that it is beyond their grasp." ■

"I took a gamble, emptied my savings account and bought into the group"

Sportscar of the skies

Sleek, swift and stylish: **is this feisty Italian the perfect weekend playmate?** We ask Paul Freeland what makes the Marchetti SF.260 'just his type'

WORDS Charlotte Bailey
IMAGES Steve Bridgewater unless stated



IT'S EASY to be enamoured by an aeroplane – the freedom of flight one represents and the privileged window into sun-split clouds it affords – but occasional examples match an aviator's adoration with a passion all of its own.

Swell Aerodrome, Northampton, is the destination for my date; posing before the beautiful Art Deco backdrop sits a spirited Italian with elegant curves, commanding my attention with an effortless ease. Meet the Marchetti SF.260: tourer, trainer, light combat aircraft, display team member, record breaker and film star. This particular example is owned and flown by Paul Freeland, who is only too keen to extol its virtues.

Defining an aeroplane as

a 'good all-rounder', more often than not, precedes disappointment: a sacrifice invariably compromising power, performance, space or style. Machines designated such a description, while accomplished in a number of roles, seldom exceed expectations. The SF.260, however, is that rare creature; the elusive kid in the class boasting accomplishments across all areas while maintaining soaring popularity.

CREATIVE GENIUS

The SF.260 was the creative masterpiece of Stelio Frati, Italian mechanical engineer and renowned freelance aeroplane designer. Back in the days before computer-assisted design, plans were drawn by hand and sweeping pen strokes echoed the flowing lines of their visionary counterparts.

"G-RAZI is, in fact, the oldest SF.260 flying worldwide"

Even on paper the SF.260 is a draftsman's delight: sporty curves, a slender frame and a fuselage topped with a canopy affording excellent visibility.

The first of Frati's designs to be conceived entirely from metal rather than wood, the Aviamilano-constructed prototype Marchetti F.250 (powered by a 250 hp Lycoming powerplant) first flew on July 15, 1964. The production variant SF.260 would shortly follow, built by SIAI-Marchetti – which would continue to produce the type in various models until the company was absorbed by Aermacchi in 1997.

As is typical with Frati designs, which all promise power and performance as well as sheer style – the SF.260 did not disappoint. A 260 hp Textron Lycoming O-540 carburetted engine turns a two-bladed



Hartzell propeller, resulting in a maximum speed of 236 kts (272 mph) with a maximum structural cruising speed of 187 kts (215 mph). Achieving airspeed records in its class for 100 km (62 miles) and 1,000 km (620 miles) closed circuits, the SF.260 excelled in areas many of its contemporaries fell short in, boasting jet-like handling while combining aerodynamic excellence and aerobatic ability.

"DO SOMETHING SIGNIFICANT"

Having been fascinated with aviation since boyhood – literally piecing together fragments of an unearthed Hawker Hurricane in the woods behind his house, a childhood treasure-trove he still cherishes today – Paul embarked on his PPL journey as a "midlife adventure" on his 40th birthday. After learning to fly on the Aero AT-3 at Sywell, he bought a share in a Beagle Pup before doing an aerobatic course in a Slingsby T67M Firefly. Following the

sale of the family business, the "opportunity to do something significant" arose, and the acquisition of an aircraft seemed a good way to do that.

Although originally considering a Focke-Wulf/Piaggio P.149, the SF.260's inimitable style and handling characteristics resulted in Paul soon changing his mind: "It offers complete flexibility – an aircraft that will do pretty much anything for anyone."

He found D-ESIC for sale in Bremgarten, Germany and the deal was sealed on October 24, 2015. After bringing the aeroplane back to the UK it would subsequently join the British register, and 'G-RAZI' (a nod to the Italian 'Grazie' or 'thank you') offered a subtle expression of gratitude to all those who had helped their paths come together.

The aircraft had been overhauled by Meier Motors in Germany in 2010, including a bare-metal respray. Of several paintwork designs proposed, the red and white chequered

"The SF.260 combines the accolade of military merit with playtime potential of a 'hot hatch'."

design best echoed its sporty racing car-like reputation.

SPORTS TOURER

Yet the SF.260 turns heads for more than simply a pretty paint scheme: with fewer than ten known to be registered in the UK, this is a rare breed indeed. Paul recalls flying home from Jersey and calling up Brize Norton to request a basic service, to be met with initial confirmation and then a short pause followed with – 'say again your type?'. Seemingly the rate-of-displacement of this piston-powered pocket rocket on their screens was rather surprising the military controllers.

Although early versions such as G-RAZI benefit from being the lightest of a line of models that saw subtle changes (and weight gains) from the early 1970s onwards, potentially the one restriction of the SF.260 is its payload. As a 'lightweight sports tourer', you can't load it up to the gunnels: empty of fuel, oil or pilot, the original SF.260 weighed in at 1,640 lb



CLOCKWISE FROM MAIN: The visibility from that enormous perspex canopy is exceptional; Despite her low-slung undercarriage and relatively small wheels, G-RAZI is very much at home on grass; Running in to begin a display practice.

John Honsdale via Paul Freedland
Via Paul Freedland

An SF.260 made its silver-screen debut in 2008's *Quantum of Solace*, where although not flown by Bond himself, it was dispatched by an exiled Bolivian dictator to kill the spy. Needless to say it failed, but the sequence nevertheless highlights the SF.260's impressive handling characteristics.

John Keadle via Paul Frelind



Over the snow-sprinkled Black Forest. With a five hour endurance the SF.260 is a genuine 'going places' aeroplane.

Vol Paul Freeland





CLOCKWISE FROM MAIN: Man and machine. Paul Freeland is a strong advocate for the SF.260; Paul has his Display Authorisation and is eagerly anticipating bringing G-RAZI to an airshow near you in 2021; Has Stelio Frati ever designed an ugly aeroplane?

(744 kg) – G-RAZI now clocks in at 1,748 lb (793 kg). With a maximum take-off weight of 2,429 lb (1,102 kg) that only leaves 309kg to cover pilot, passengers, luggage and fuel. Yet surely some small sacrifice is acceptable, even expected? Simply convince your partner to travel (very) light and weekends far away are a realistic option.

In fact, unlike its military brethren, the civilian SF.260 is potentially a four-seater. A spacious rear seat can accommodate one or two passengers on shorter trips, with consideration to size and weight restrictions of 250 lb (113 kg) on the rear seat without baggage. G-RAZI operates on a UK CofA and is insured as a four-seater.

If not extending the invitation to a third or fourth companion, a spacious luggage compartment offers up to 90 lb (40 kg) of storage. Fuel capacity is a total of 62 Imp Gal (235 lit) – with a usable 13 Imp Gal (48 lit) in each main tank and a further 18 Imp Gal (69 lit) in

"Boasting jet-like handling capabilities combining aerodynamic excellence and aerobatic ability"

each tip-tank, the total fuel weighing in at around 385 lb (175 kg) combined.

With all four tanks full and cruising at 10,000 ft (3,048 m) at 165 kts (190 mph) the handbook states an endurance of between five and five and a half hours, using approximately 43 lit/hr. Increasing speed to 180 kts (207 mph) will increase fuel consumption to 55 lit/hr. Paul recommends switching between tanks every ten minutes or so to maintain an even weight distribution.

Inside the cockpit, style and comfort continue to combine in inimitable Italian elegance. Red piping surrounds luxurious leather seats, a subtle suggestion of passion integrated into a plush cabin that can otherwise be described as comfortable. There is ample space for all manner of accoutrements; this seems very much a sports car with storage space as standard.

Coming in to land, the manual dictates a minimum of 87 kts (100 mph) on final approach,

and the aircraft starts to wallow a lot below around 85 kts (98 mph). Despite having retractable gear, short strips are no problem either, Paul explains: with a careful approach he's eased it into the Stoke Golding farm strip in Warwickshire and stopped in just over half of the available 520 m – although for comfort he would look for an LDA of at least 550 m when travelling further afield or anticipating 'awkwardness on approach'.

Although initial SIAI Marchetti models (designated SF.260A) were produced in small numbers for civilian owners, the type offered attractive opportunities for military applications and the SF.260W ('Warrior') variant was launched in 1972 with underwing hardpoints for armaments. The design has been upgraded a little since the earliest incarnations, predominately with military applications in mind. In an attempt to prevent pilots' helmets grazing the canopy, the seats were lowered

and the stick shortened; however, this necessitated the addition of servo tabs on the ailerons to counter the increased stick forces.

However, for those of us for whom an afternoon's aerial adventure needn't involve shooting down an enemy, those fighter-like attributes translate into an agile experience – merging military merit with the play potential of a 'hot hatch'.

Of course, encompassing speed, style and range isn't quite sufficient for this passionate Italian. Destined from the drawing board for more than straight and level flight, G-RAZI has the moves to match her figure – remembering the maximum aerobatic weight of 2,205 lbs (1,000 kg). Refined and graceful throughout, the SF.260 – unlike other aerobatic airframes such as the Extra 300 – is no hooligan, but the bright red harnesses are an unobtrusive reminder that this is a machine built to excite. It is rated at +6/-3G, although you needn't necessarily push it near the upper tolerances to enjoy its aerobatic prowess – nor need

"It offers complete flexibility – an aircraft that will do anything for anyone"

you remain inverted for the ten seconds that the POH rates this carburetted variant for.

With laminar-flow wings and an above-average wing loading, stability and manoeuvrability combine to offer a responsive stick experience. The tip tanks must be empty prior to aerobatics and have tiny spoilers that direct air across the outboard edge of the ailerons, assisting handling characteristics near the stall.

Paul gained his CAA Display Authorisation in 2018, allowing him to present the agility of this beautiful aircraft at events across the country.

Stelio Frati held the philosophy that his aeroplanes ought to use as many standard parts as possible, albeit in a unique airframe. As such, most parts are comparatively simple to source, explains Paul. While new parts are still produced by current owner Aeromacchi, direct communication is not always fruitful and often repair is more feasible than replacement – something which Swiftair Maintenance has proved very helpful in orchestrating. In addition, a

close-knit group of owners around the world are always keen to offer assistance.

Whether you're travelling overseas, dancing through an aerobatic routine or simply chasing clouds across a sunlit sky, the SF.260 really does exceed expectations.

Although brand new models are available to the civilian customer in the form of the piston-powered SF.260E and turboprop-equipped SF.260TP, they will set you back in the region of a quarter to half a million dollars. A good quality vintage model is clearly your best bet – after all, these timeless classics can only appreciate over time.

In conclusion, G-RAZI can be flown as a four-seat tourer or a two-seat aerobatic aircraft. She can fly from short strips yet cruise at 180 kts (207 mph). She's a capable instrument-flying platform but remains 'exciting' to fly.

Is this one of GA's best all-round packages? Perhaps so, but I'm afraid you'll have to find your own as Paul has no plans on letting this stylish Italian slip from his grasp. ■

TECH SPEC Marchetti SF.260

DIMENSIONS

Wingspan: 27 ft 4 in (8.35 m)
Length: 23 ft 0 in (7.02 m)
Height: 7 ft 7 in (2.31 m)

PERFORMANCE

Max Cruise Speed: 187 kts (215 mph)

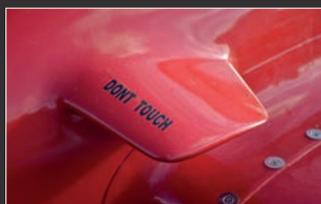
Max Speed (Vne): 236 kts (272 mph)
Stall speed (with flaps): 60kts (69mph)
Max Climb Rate: 1,880 ft/min (9.15 m/s)
Endurance: 5 to 5.5 hours
Take-Off Run: 250 m (820 ft)
Service Ceiling: 21,300 ft (6,550 m)
Max Load Factor: +6G/-3G

WEIGHTS

Empty Weight: 1,640 lb (744kg)
MTOW: 2,429 lb (1,102kg)

POWERPLANT

Engine: One Lycoming O-540 (260 hp)
Propeller: Hartzell Variable Pitch



A 6ft 4in diameter two-bladed constant speed Hartzell propeller pulls G-RAZI through the skies.





SMART RUDDER BIAS FOR GFC 600

SRB gives a helping hand when you lose an engine...

What Autonomi Smart Rudder Bias
From Garmin

THE SUDDEN loss of an engine at low speed is the nightmare that haunts all pilots of twin-engined aircraft. Quick action is needed to ascertain which engine has failed and to correct the potentially hazardous aerodynamic effects of asymmetric flight.

Garmin has introduced a new product that can take a lot of the difficult work out of the pilot's hands and free him/her up to look for an alternative landing site.

Dubbed Smart Rudder Bias (SRB), the new system provides additional assistance by identifying the affected engine and providing control inputs to help give the pilot time to stabilise the aircraft.

The SRB automatically arms when the aircraft has reached the manufacturer's stated VMC (minimum controllable airspeed with



A yellow annunciator for the inoperative engine is conveniently displayed on the GFC 600 flight display.

one engine inoperative) and monitors the aircraft through the entire flight – irrespective of whether the autopilot is on or off.

It compares power output between the two engines and detects when the difference exceeds a predetermined threshold. Once it has identified which engine is affected it immediately applies control force to the rudder to help overcome yaw tendencies

from the loss of power and added drag, allowing the pilot to confirm the failure quickly and complete procedures to maintain control of the aircraft. SRB also applies modified Electronic Stability and Protection (ESP) control inputs if the bank angle exceeds pre-set limits to help the pilot correct for roll tendency, even in turns. It also uses ESP elevator inputs to help pitch to a safe airspeed.

Garmin SRB is available in selected piston twins that have a Garmin GFC 600 autopilot with yaw damper and TXi primary flight display with engine indications installed. So far the system is compatible with the Beech Baron 58 and 58A models as well as Piper's PA-31-300, -310, -325 and -325CR. Garmin says more certifications are in development. ■

Where garmin.com

Price No cost for upgrade



GRAPHICAL AIRSPACE AND OBSTACLE NOTAMS

What Garmin Pilot App
From Garmin

The latest update (version 10.3) to the Garmin Pilot App for Apple devices includes a new system of graphics that are overlaid on the map to show NOTAMs. The associated altitude of the NOTAM is also labelled for even more clarity. NOTAMs that are scheduled to become active in the next 24 hours are displayed in yellow to help alert pilots in advance and aid with flight planning.

Active airspace NOTAMs are colour-coded depending on the following classifications:
RED: Restricted and Danger NOTAMs, such as Prohibited Areas

ORANGE: Alert and Warning NOTAMs, including Military Areas

GREY: Flight Data Centre NOTAMs such as Instrument Approach Procedure changes

PURPLE: Other NOTAMs such as Parachute Areas. Pilots can view NOTAMs in both decoded or raw text. Obstacle NOTAMs use pink figures to differentiate them from permanent obstacles and are displayed any time the NOTAM or obstacle layer is enabled.

Where garmin.com

Price 30 days free. Then £110 annual subscription.

RATE OF CLIMB

Steve Bridgewater's Christmas reading was the much-anticipated memoir of an aviation legend and old friend

Author Rick Peacock-Edwards
From Grub Street

I HAVE to confess an element of impartiality from the onset. I have known Air Commodore Rick Peacock-Edwards (who's normally known simply as 'RPE') for some time and he has been both a good friend and supporter over the years. So when he announced he was writing his memoirs I knew it would be a fascinating and most entertaining read.

RPE is one of three sons of South African Battle of Britain pilot F/O SR 'Teddy' Peacock-Edwards and he openly admits that "as the proud son of one of 'The Few', their selfless daring has inspired me throughout my life. Importantly, they influenced my decision to become an airman in the RAF, to become a fighter pilot like my father, and to live life with spirit as they had lived their lives. It is essential that their experiences live on." Perhaps that is why he has such a happy-go-lucky persona and why he infects everybody he meets with the same 'joie de vivre.'

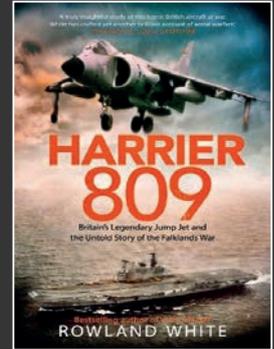
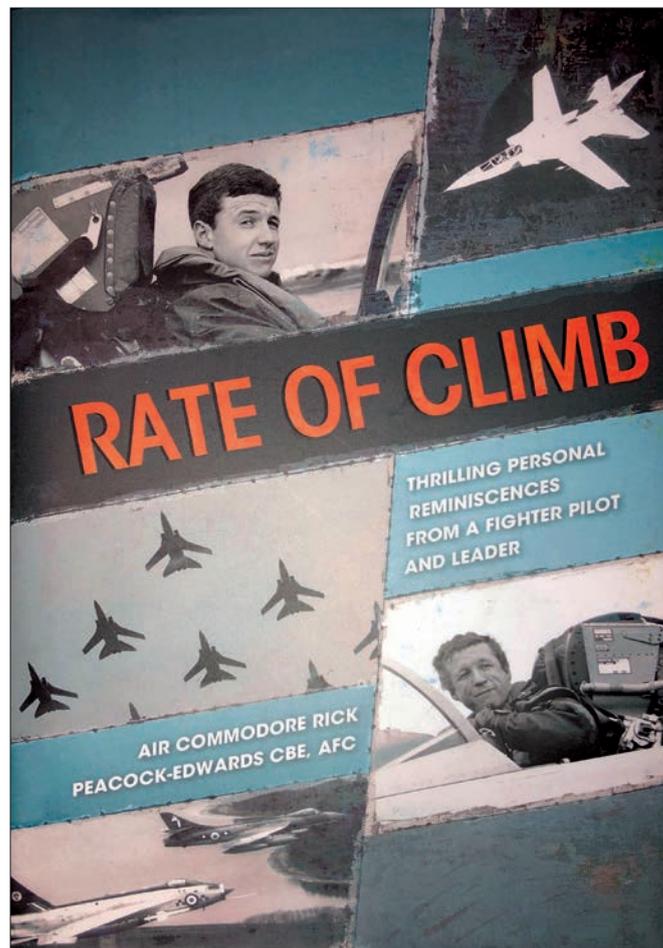
Rate of Climb draws on previously unpublished family and archival material and details both his military and subsequent civilian careers. Not only was he one of very few pilots to fly the Lightning, Phantom and Tornado F.2/3 in his 30 years of RAF service but he also rose to the rank of Air Commodore with senior positions in Britain, Germany and the USA. He was, variously: Station Commander RAF Leeming, Deputy Commander RAF Staff in Washington DC,

Inspector of Flight Safety and Director of Eurofighter.

I once asked RPE what he felt was the pinnacle of his flying career: was it intercepting Russian Bear bombers over the North Atlantic? How about introducing the Tornado ADV into RAF service? Maybe leading the flypast for the Queen's 60th birthday and also the opening of the 1986 Commonwealth Games? What about developing (and flying) the joint Spitfire/Tornado pairs display? After much thought he looked at me and said: "I've been lucky to have so many opportunities – but my first solo in a Lightning can't be beaten!"

You can read all about RPE's amazing career in this book – but it can only scratch the surface of the life of a man who is a Past Master of the Honourable Company of Air Pilots (formerly GAPAN), past chairman of the Historic Aircraft Association, a Fellow of the Royal Aeronautical Society, past-Vice Chairman of the RAF Club in London and a seasoned flying display director (to name just a few highlights from his extensive CV!). This is an action-packed book, full of good stories and a colourful cast of characters. ■

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HARRIER 809

Author Rowland White
From Bantam Press

The latest book by the author of the best-selling *Vulcan 607* returns to the Falklands. *Harrier 809* tells the story of the Harrier's exploits in the 1982 conflict, focusing mainly on 809 Naval Air Squadron and the RAF's 1(F) Sqn, both of which sailed south on the Atlantic Conveyor. The book follows White's usual style of combining interviews and first-hand accounts with a good historical background to present an enjoyable fast paced story that balances the history with the personal stories and experiences that are at the heart of the narrative. *Harrier 809* also does a welcome job of covering the often underappreciated Argentinian side of the story as well as focusing in depth on the Exocet threat to the British Fleet. However, the ending feels neglected and rushed with only a couple of pages allocated to the end of the conflict and subsequent fate of the squadrons and crews. The disappointing ending overshadows an otherwise fantastic read.

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