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EDITORIAL

With Dave Calderwood

COLUMN

Welcome to the new FLYER

New website, new ideas, still the great content that we've been producing for nearly 30 years

3 May 2022

Welcome to the new era for *FLYER*. We are now 100% digital, available on the web on whatever is your preferred device – desktop, laptop, tablet or smartphone. Online is the best way to consume the content we produce. That way you'll have the latest news, the newest articles, the videos and other graphics, and the most relevant and contemporary commentary.

However, we also have a downloadable pdf version available every four weeks which is a compilation of some of the articles we have uploaded to the website, just in case you want to read *FLYER* when offline, such as when travelling. Again, the pdf should be viewable on whatever device you like. The June 2022 edition will be available later this week under the Magazine section (along with back issues).

As the latest June issue is published (as a pdf) this week, the whole website is available for everyone to read, except for the parts reserved for *FLYER* Club members such as free landing fee vouchers, weather briefings and other benefits. However, that will change soon when we introduce a 'paywall' whereby some of the articles will only be available to *FLYER* Club members. There will also be a 'Reader' option, for those who want to read all the content but who don't want or need the Club benefits.

Some of the site will be available to all, for free. That's known as 'Basic' membership. But we're sure you'll want to join the *FLYER* Club and be part of everything we have to offer.

[Click here](#) to see the three options available, Basic, Reader and Club member.

So what have we been up to over the past few weeks? First, we've been busy knocking this website into shape. Inevitably with such a big project, some of the tech was difficult to get right but it's (mostly) working well now. We've also listened to comments and suggestions, some of which we've been able to implement quickly while others will go on the snagging list.

As well as all that, we've also staged another Pilot Careers Live event, produced the annual FLYER Learn To Fly Guide, and attended Europe's top General Aviation show, AERO at Friedrichshafen, Germany.

The Learn To Fly Guide is an example of how we now work. The Guide is available [here](#) which you can either read online or download as a pdf for offline reading. The articles in the Guide are also available on this website [here](#) and will be updated and added to when necessary.

For the time being the listing of Flying Clubs & Schools is not online, only in the pdf. However, that will change as time goes on and we are planning a searchable database of clubs & schools.

All of our extensive AERO22 coverage is available online too, and that's collated [here](#) but is also available in the downloadable June issue pdf.

The thing about a pdf version is that it's static. Once created, that's it. It won't be updated and it doesn't contain multimedia such as video and photo galleries. For all those goodies, and to take advantage of the FLYER Club benefits, you need to come to the website.

If there's any part of the new FLYER you wish to comment about, good or bad, feel free to email me: dave.calderwood@seager.aero

Have a great month flying!

Dave

Finding your way around this site

The FLYER home page is the hub of the site. From here you can find most things. To get back to the home page from anywhere on the site, just click on the FLYER logo at the top of the page.

On wider screens, say desktop computers, there is a navigation menu of sections under the logo. On smaller screens, this disappears and you will need to open what's known as the 'hamburger' menu. This is the three-line icon in the top left of the screen. It's called a hamburger because, apparently, it looks like one...

Click on the hamburger and the extended menu opens. This lists all the sections on the website. Clicking on any of them will take you to an archive page of that content, ie **Flight Tests**, **Flying Adventures**, and **First Solos**. Then just look for the content you want and click on it.

You can also use the search function – the ‘magnifying glass’ icon, also in the top left corner. This recognises key words such as **Bodmin**, **Cessna**, **electronic** **conspicuity** etc.

Finally, as a FLYER Club member you can access your personal page known as the **Dashboard**. This gives you the latest personalised landing fee vouchers, weather briefing and other benefits. You can also see the status of your account.



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June 2022

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Travel TV journalist Kellee thought flying herself would be an ideal way to get around

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NEWS

LAA returns to grass roots at Popham

16 April 2022



Photo: Michael Miklos, Aircraft Action Images

A new look LAA event will be held at Popham Airfield in Hampshire on 2-4 September 2022.

The event will be called the LAA Grass Roots Fly-In, and is a joint venture with Popham Airfield.

It will continue the theme of recent LAA Rallies at Sywell, in particular as a social event bringing flyers from around the UK and Europe to meet fellow enthusiasts, but on a more intimate scale.

The LAA points out that the grass runways at Popham and the airfield's rural ambience will mean that the event will focus on the fly-in and social element as much as on a large exhibition campus.

LAA CEO Steve Slater explained, “The LAA Grass Roots Fly In is going to be different to the LAA Rally and we’re still working on plans for the continuation of a larger scale LAA event in the future.

“Our move from Sywell though is a great opportunity for us to focus on creating a refreshing new take on the traditional LAA calendar fixture, something both different and at the same time taking us back to our roots.

“The LAA Grass Roots Fly In will make the most of Popham’s grass runways and its reputation as one of the most friendly and enthusiastic airfields in the country, to offer members and guests alike a great weekend at the start of September.”



The annual **Microlight Trade Fair** is held at Popham and is a very successful event, with hundreds of aircraft movements over the long weekend.

Light Aircraft Association

Popham Airfield

Thatcham promises to make car and flying dual ops work at Gamston

Words Dave Calderwood | 13 April 2022



At first glance, the news that Thatcham Research has successfully completed its takeover of Gamston Aviation which owns and operates Retford-Gamston Airport, doesn't sound that good for General Aviation. However, Thatcham's team of engineers are enjoying the atmosphere at the airport and are committed to making the plan for dual operations – flying and car testing – work side-by-side.

Richard Billyeald, Chief Technical Officer at Thatcham Research, told FLYER, “We never went into this expecting to be running an aviation operation. But actually, we've seen great benefits already of what that brings us.

“The biggest challenge we have at our current side, at Upper Heyford, is actually the remoteness of that site. [The former USAF] site is enormous and you got to

drive 10 minutes, once you've come in the gate, to even get to where we base ourselves. And it's the middle of nowhere – they use it for filming *Zombie Apocalypse*.

“When you've got a small team of 12-15 people working there, it's an unpleasant environment. We've got young engineers, and we train them up to deliver the things we need to deliver. That environment could potentially drive people away if we're not careful.

“So one of the major benefits that we have seen from coming to Gamston, as you come in through the gate, there are people, there's a buzz, there's a great feel to the site, whether that's aviation, the cafe or the other businesses based there, there is a kind of humanity, there's a community. And that's a massive plus for us and our teams. And it's something that everybody who's come up from Thatcham has recognised.

“There's also the cold hard reality of things that any planning permission requires us to maintain dual operations. So we're going to do it.

“We make revenue from having commercial users on site, tenants on site, and private flyers. Whilst we're not about turning enormous profit – we're a nonprofit organisation – it helps the sustainability of the site, to have that income to help support it.

“And also, actually, especially the teams that are coming up, we're all generally technical engineers. We're all really keen on what's going on. I'm looking to restart flight training that I last did 30 years ago, when I did an RAF scholarship when I was in my teens. I'm looking to restart just from having that kind of interaction and seeing the things going on.

“So actually, whilst it was never something we were looking for, we do see the huge benefits. It's a big plus.”



Thatcham Research will be running car safety tests at Gamston but pledge to work with aviation. Photo: Thatcham Research

Day to day operations

While it's great to hear that joining the active aviation community at Gamston has enthused Thatcham's team, how's it going to work?

Richard confirmed that day-to-day management of airport operations will continue to be run by Evangalene ('Evie') Mcleod, who is Airport Manager and CAA Accountable Manager.

"Evie reports to me because I look after our engineering operations, including track testing," said Richard. "She has day to day responsibility for running the airport.

"We've got two controlled environments, we've got aviation, which is a controlled environment, we've got track testing, which is a controlled environment. So whilst we might have days of track testing, it can be very on and off. Partly, that's the nature of the beast, you do runs, you gather data, you review data, you run again.

"And so there's there's naturally gaps that will occasionally happen. The facilities won't be blocked out. It's also quite localised on the site. We've got an apron area in front of the hangars and a lot of our testing will take place on this. And there's the perimeter track that we're resurfacing at the north end of the of the site, which will also will be licenced to provide taxiing opportunities.

"We will test on the main runway but that's a different sort of testing and reasonably low percentage of usage at the moment.

“Evie and our Operations Manager in charge of track testing will be in constant communication. There’ll be signals, there’ll be marked areas, there’ll be published schedules. So we’ll have that kind of structure. But also flexibility in between. That might mean it’s going to have an impact. If we do need to run some tests on the main runway, then that’s going to get in the way of aviation.

“But as I said, that’s not necessarily going to be all the time and if for example, we stopped because we’ve had an equipment failure and we’re going to be two hours fixing that, we’re not going to keep everything blocked out for that time.”

So will the airport’s hours of operation be as as normal?

“For now,” confirmed Richard. “That doesn’t mean we won’t change it. Going forward, it might make sense to reset that slightly for everybody’s benefit. But we want to get our dual operations underway first and work out the wrinkles. Where can we tweak things to improve it from our side and from the aviation side. There are lots of those sort of decisions to be made.”

Aircraft displaced

One of the worries at the beginning when it was first announced that Thatcham had an interest in Gamston was that some of the aircraft based in the hangars will be displaced, but Richard confirms that’s not the case.

“No, we haven’t displaced anybody and we’re not planning to in the near term future. We are planning to base ourselves in terms of the workshop and an office facilities in Hangar 11. The rest of the hangar range remains available. We will have to move a few people around to make sure it works but there’s room enough for everybody.”

Will private and professional pilots be able to PPR and come and land?

“Yes, they will,” said Richard. “The track operations are inevitably going to have an impact, but we think that’s quite manageable, and will be quite flexible.

“One of the biggest differences is that we’re owned by insurance companies, they fund us to do the work that we’re doing. And we reflect their kind of risk appetite which is at the very low risk level. We have a lot of processes, procedures, committees, structure and framework to give our insurers comfort and confidence in what we’re doing, and that will be reflected in how we run the site.

“But I think also the way we approach it will reflect our kind of small business mindset, which is flexibility, engagement, ‘just’ conversation and understanding, and fair and reasonable, I think.”

When will people start to see the changes?

“We’re planning to do all of this [building work] in the summer this year. We can’t be any more accurate than that, because we’re in the middle of the tender process, talking to contractors and getting bids in. Until we know, we can’t define a schedule, but the plan is through this summer to get that work done, recognising the impact and trying to mitigate it as much as we can.

“Our plan is to start operations around October this year, and we’ll be looking at a transition period but that’s the overall roadmap.”

Are you a pilot or business owner at Gamston Airport affected by the changes? Let FLYER know. Email: dave.calderwood@seager.aero

Thatcham Research
Retford-Gamston Airport

NEWS

Air Race World Championship to launch at Goodwood

31 March 2022



+VIDEO The first race of Air Race World Championship 2022 will take place at Goodwood from the 8-10 July.

Air Race is a development of the original Red Bull Air Race series which ended in 2019, after a total of 94 races around the world.

Twelve Elite Race Teams have signed up for the 2022, 2023 and 2024 race seasons, with Red Bull maintaining involvement in the Championship with the continued sponsorship of former world champion, Martin Sonka.

There's a bigger emphasis on clean technology in the new series. Through a partnership with Prometheus Fuels, Air Race plans to run its fleet of high-performance race planes on new, zero net carbon aviation fuel from 2023.

Air Race race director, Willie Cruickshank said, “We’re thrilled to be launching the World Championship Series having faced a number of Covid and other related challenges along the way. Through the introduction of new race formats and categories, we hope to attract even more fans and deliver a captivating spectator experience that will mark a new age for motorsport.”



Ben Murphy, who competed in the Red Bull air races, will be taking part in the new championship

Chris Woodgate, CEO of Goodwood, added, “We’re delighted to announce that the Air Race World Championships are coming to Goodwood on July 9th-10th this year. Goodwood is an iconic location for exceptional experiences and prestigious motorsport events and adding the Air Race helps cement that status globally.”

Tickets will be available from early April via [**Ticketmaster**](#), [**Air Race**](#) and [**Goodwood**](#) websites.

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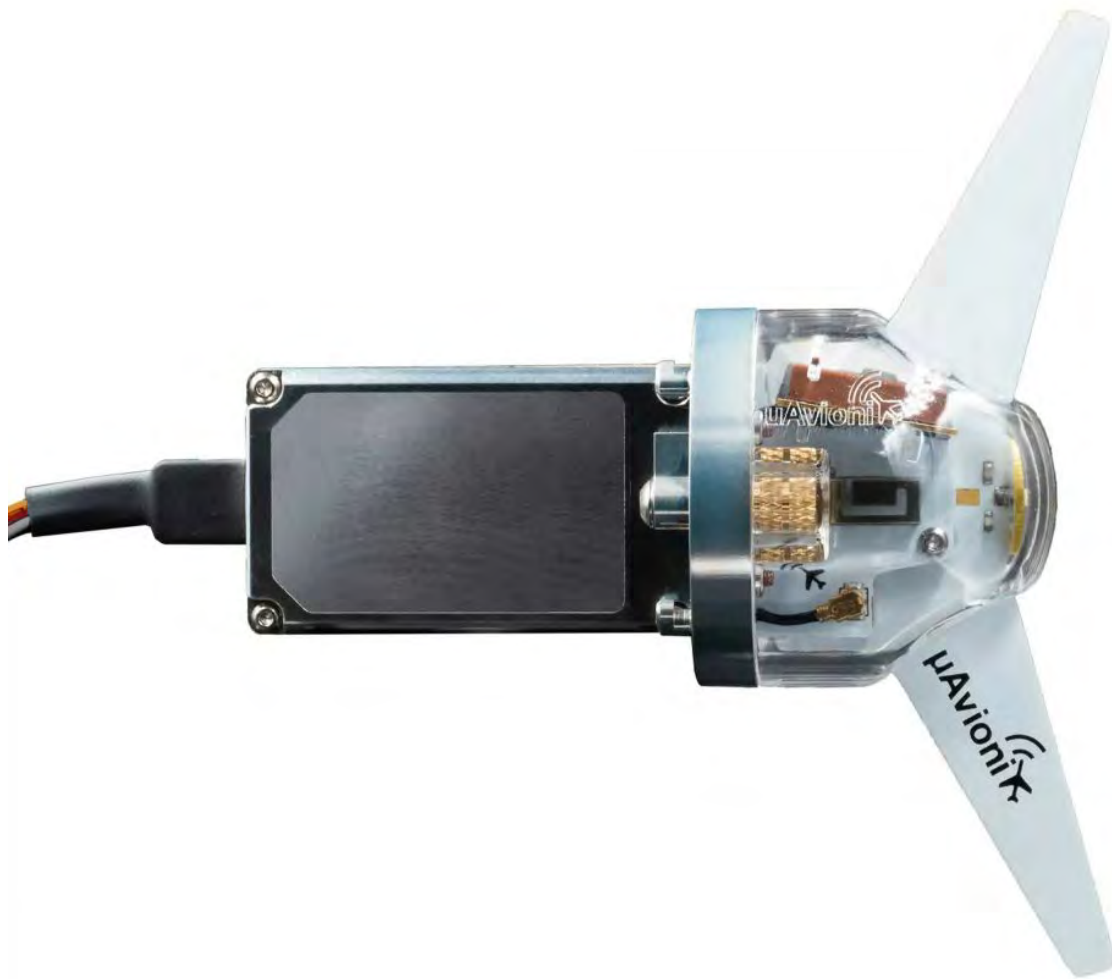


**ORIENS
AVIATION**

NEWS

uAvionix receives STC for tailbeaconX

6 April 2022



US avionics specialist uAvionix has received the Supplemental Type Certificate (STC) and initial Approved Model List (AML) from the Federal Aviation Administration (FAA) for its tailBeaconX 1090 MHz ADS-B transponder.

tailBeaconX is an integrated 1090 MHz ADS-B transponder that replaces a rear navigation light by combining it with ADS-B OUT / Mode S transponder, SBAS GPS, antennas, and LED tail light.

The initial STC-AML utilises the uAvionix AV-30-C multi-function display to be installed as the control head. In this configuration, the AV-30-C is able to leverage the tailBeaconX SBAS GPS for its GPS track display. In the future, uAvionix anticipates adding additional means of control through uAvionix and third-party devices.

The Approved Model List (AML) for tailBeaconX contains over 550 aircraft makes and models for which this STC is valid, including most major models from Cessna, Piper, Mooney, Beechcraft, and others. Additional models, including light twins, are expected to be approved in the next months.

uAvionix is pursuing STC validation for European and the UK markets.

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SPECIAL FEATURE

Rod's Report: Sun 'n Fun 2022

Rod Simpson reports from this year's Sun 'n Fun Fly-in in Florida, USA

Words & Photography Rod Simpson. Lead photo: Mike Goulian | 13 April 2022



Photo: Mike Goulian

Held from 5-10 April at Lakeland-Linder Airport in Florida, the season-opening Sun'n Fun Fly-in returned to normal after the Covid-19 crisis.

There was strong support from the light aircraft manufacturers along with plenty of other vendors, seminars and events to keep attendees satisfied and a daily airshow starring the Thunderbirds and numerous warbird formations.

Fly-in visitors were sparse in the early days, not helped by a vigorous thunderstorm on the Thursday, but the aircraft parking filled up at the end of the

week and the crowds were clearly happy with what is always an enjoyable event.



Super Patriot - another Super Cub evocation

Super Patriot

Who needs yet another copy of the Piper Super Cub? Cub Crafters and American Legend seem to do it very well but Patriot Aircraft of Birmingham, Alabama thinks it has the ultimate answer. With a reputation for top class overhauls of Piper high-wingers, the company has been flying the new Super Patriot since early 2022 and will sell builder-assist kits priced at \$291,500. The PA-18 has been completely redesigned to improve performance and eliminate the maintenance glitches of the original. Powered by a 176hp Lycoming O-320, the Super Patriot cabin is 4-inches wider than the PA-18, has 90-inch flaps, a squared-off wing and titanium undercarriage legs.



Daher TBM 960

Daher TBM 960

Daher unveiled the new TBM 960 at Sun'n Fun as a replacement for the TBM 940. It features a new Pratt & Whitney Canada PT6E-66XT engine with a digital e-throttle and Hartzell five-bladed Raptor propeller both controlled by the EPECS (Engine and Propeller Electronic Control System) to deliver up to 10% improved fuel efficiency. There is also a new digitally-controlled cabin with new LED lighting and electrically dimmable windows.



Cubcrafters NXcub

Cubcrafters NXcub

Cubs are all taildraggers ? Well not quite, now that Cub Crafters has introduced the NXcub. The company has been surprised at demand for this tricycle gear version of the Xcub which is powered by a 215hp CC393i engine and is available factory complete as a certified FAA Part 23 aircraft or as Experimental Amateur Built with Cub Crafters' builder assist programme.



Montair MC-01



Cabin of the Montair MC-01

Montair MC-01

The Montair MC-01 light sport two-seater is an all-metal design built in Brazil. It is derived from the Paradise P1, several of which were sold in the USA and it has one of the most luxurious cabins we have seen on an LSA and includes a third door to access the rear baggage area. An optional feature is hand-operated controls for disabled pilots



Scalebirds P-36

Scalebirds P-36

Be a World War II fighter pilot with your own P-36 ! The Scalebirds Lightfighter P-36 is an approximate half-scale version of the Curtiss original and the quickbuild kit sells for \$39,000. It is powered by a 124hp 7-cylinder Verner 7U radial engine and the basic airframe design can be adapted as a Hellcat, Focke Wulf 190 or, perhaps, a Mitsubishi Zero. Top speed is 130kt and the useful load is 325 lb.



Dornier Do.28A

Dornier Do.28A

Attracting much attention was this rare all-red Dornier Do.28A-1 light twin. Originally delivered to Denmark in 1961 for service in the Faroe Islands and Greenland, it went on to the USA for operation on floats by Isle Royale Seaplane Service. Then, it languished in a hangar for several years, along with another Do.28, until rescued by Pep Anderas of Green Bay, Wisconsin.



Beech AT-11 Kansan

Beech AT-11 Kansan

It looks like a Beech 18 – but what is that funny nose ? A welcome warbird, owned by Fran and John Hess, was this rare Beech AT-11 Kansan. Produced as a navigation and bombing trainer and for aerial photography, it was built in August, 1941 and served with the Air Force Bomb Training School at Victorville. A close look underneath reveals the bombing compartments for practice bombs.



TB-30 Epsilon

Socata Epsilon

Warbird enthusiasts have a new alternative to the T-6 Texan/Harvard and the Chinese Nanchang CJ.6. The French Air Force has been releasing its TB-30 Epsilon tandem seat trainers which have retractable gear and are powered by the 300hp Lycoming AEIO-540 piston engine. We counted five at Sun 'n Fun.



Zenith Monster STOL

Zenith Monster STOL

One of the strangest aircraft at Sun 'n Fun was the Zenith Monster (Super Duty) owned by Jan Eggenfellner of Viking Aircraft Engines and powered by one of their 195hp engines. The highly modified aircraft is for use in Short takeoff (STOL) competitions. Key to its performance is the very tall undercarriage which positions the aircraft at a high angle of attack allowing it to take off in only 44 feet !



Texas Colt

Texas Colt

Yet another Brazilian design, the Texas Colt is a development of the popular INPAER Conquest 180. This LSA has a tubular steel cabin structure with metal cladding and a monocoque rear fuselage and metal wings and tail. The engine is a 100hp Rotax 912ULS and 17 have been produced at the Hondo, Texas factory to date, selling for \$175,000 with Dynon or Garmin avionics.



Beech G58 Baron

Textron upgrades


With no Bonanza or Baron deliveries last year questions have been asked about their future – but fear not ! Together with other Textron piston engined aircraft, they have been given a makeover with the G36 Bonanza having a 155lb increase in maximum takeoff weight and, along with the G58 Baron and the high wing models, having a Garmin G1275 electronic standby. The Beechcrafts have a new autopilot controller and there is a new interior with USB ports at each seat and a redesigned cockpit layout.



Veloce 400

Velocé 400

If the four-seat kit-build Velocé 400 looks familiar it is because it is a new version of Rich Trickle's KIS Cruiser which went out of production several years ago and was briefly manufactured in El Salvador. The Velocé 400, making its debut at Sun'n Fun, is manufactured in Brazil and powered by a 210hp IO-390, 275hp TIO-540 or 300hp Aeromomentum AM.300HP engine. The kit sells for \$49,000 excluding the engine.



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INSTANT EXPERT

With Ed Bellamy

COLUMN

Returning to a UK licence

Ed Bellamy takes a more detailed look at the requirements for going EASA to UK

By Ed Bellamy | 23 April 2022

One piece of personal admin I recently dealt with was applying for a UK Part-FCL licence on the basis of holding an EASA one. I was a bit late to the party compared to some, but with the 'paperwork only' option expiring at the end of the year (which inevitably will pass in the proverbial flash), let's have a look this process and some of the remaining loose ends of Brexit.

Flying EASA registered aircraft

On 6 April 2022, Skywise reminded us that UK licence holders have not had the privilege to fly an aircraft registered in an EASA Member State since January 2021 (the end of the Brexit 'transition' period). I am not sure why this reminder was deemed necessary more than a year on, but just in case anyone was in doubt, if you hold a UK licence and wish to obtain an EASA licence or validation, this must now be done through the EASA 3rd country licence conversion process. It is essentially the same as it would be for converting a foreign licence to a UK one and involves taking the relevant licence skill test, some ground exams (in the case of the PPL, Air Law and Human Factors) and then applying through an EASA Member State.

Ending of EASA licences on G-reg

A more relevant reminder from earlier in the year was that by the end of 2022, EASA licences will no longer be valid for flying UK registered aircraft. This is currently possible under the CAP2017 general validation. Note that CAP2017 only ever applied to EASA licences that were issued prior to 1 January 2021 – those issued since do not have any automatic privileges on UK registered aircraft. After the end of 2022, a UK issued licence or validation will always be required to fly a UK registered aircraft. The only exception being that the Air Navigation Order

still contains a general validation for foreign licence holders to fly UK registered non-part-21 aircraft (ie mostly vintage, amateur builds and microlights) privately and without formality.

Obtaining a UK licence

Prior to the end of the Brexit transition process (1st Jan 2021), a number of people in the UK transferred their state of licence issue to another EASA member state. The administrative process for EASA licence holders to now obtain a UK Part-FCL licence has been with us for around a year. It is open to anyone who holds an EASA licence that was valid before 1st January 2021, although I did not examine whether there was any difference in requirements depending on whether a UK EASA licence was held in the past, although it seems not. For EASA licences issued from 1st January 2021 onwards, the normal 3rd country conversion requirements apply.

In 2021 quite a small proportion of these applications were processed, but this will hopefully pick up as we continue towards the expiry of the CAP2017 general validation. It appears the application process will close at the same time as CAP2017 expires. I hold an Irish EASA licence and previously had a UK EASA one, so had a go at this 'returners' process. It is generally straightforward – I won't repeat the contents of the CAA website, but just share a few observations.

It requires a 'certified copy' of the existing EASA licence document. Note that the list of acceptable professions to certify copies has recently been expanded and this may help GA pilots who are not in frequent contact with examiners or ATOs. A copy of an identification document is also required, but this can now be submitted as a 'selfie' showing both face and document identity page.

One concern I had was what happens if a rating expires or is revalidated/renewed while the application is still in progress. Guidance from the CAA suggests that updated evidence of ratings held can be submitted, avoiding the rating being endorsed on the UK licence as expired. If your non-UK medical is valid and all records can be retrieved, it should be possible to obtain a UK medical without another examination, although I have heard a few stories of record gaps causing issues.

After rounding up my non-UK medical records and submitting form SRG1217, the Cellma system issued me with an equivalent UK medical certificate without further query. It does not appear to matter whether the medical or licence application is submitted first, but I suggest it makes sense to do the medical first, so that the absence of a medical does not hold up issuing the licence. If obtaining your non-UK medical records is a problem, a UK medical from an AME is obviously an option and would be considered a renewal (rather than initial) if you are within five years of your last UK medical. It is now a requirement for all applicants for UK medical certificates to be registered on Cellma before a medical is issued.

The Cellma medical system is accessed through the CAA 'Customer Portal'. It is possible to register for and apply for the licence through eLicensing, which is also accessed through the Portal. The online form SRG2158 can be used if eLicensing does not work for some reason – applicants without any UK licensing history might find that option more straightforward. One thing that appeared to help was knowing my old CAA reference number, although it is not a requirement to have one, I suspect it will speed up the process.

[Click here for more info](#)

The Garmin logo is centered at the top of the page, enclosed in a thin black rectangular border. The background of the entire advertisement is a high-altitude aerial view of a vast, textured sea of white clouds under a soft, hazy sky with warm, golden light, suggesting a sunrise or sunset.

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PILOT CAREERS

Bristow goes exclusive with Helicentre for UK pilot training

Helicentre Aviation is to become the preferred provider of ab-initio commercial pilot training for Bristow Group.

4 May 2022

Helicentre Aviation is to become the preferred provider of ab-initio commercial pilot training for Bristow Group.

Bristow will support Helicentre with the promotion of future pilot career events, actively support the development and mentoring of future aviators and engage with those training to become helicopter pilots at the early stage of their career.

In return Helicentre will be Bristow's preferred provider of ab-initio pilot training and recruitment in the UK, supporting the sponsored programmes run by Bristow.

Cadets will have access to Bristow's flight ops team, which support both commercial air transport and search and rescue activities, with the ability to visit live operations.

Helicentre already operates Bristow's sponsored UK cadet programme. The programme provides fully funded training, from ab-initio to commercial pilot on an Integrated CPL(H) course.

Bristow also funds training for a multi-engine instrument rating under its UK cadet programme. The UK sponsored programme selects a number of candidates annually, with over a thousand applications being received for the most recent course.

On completion of initial pilot training, pilots undergo further training with Bristow's operational fleet. This specialised training is normally completed at Bristow's training facility in Dyce, Aberdeen, which is the only facility of its kind in the UK. The purpose-built centre has three helicopter simulators which use advanced full motion technology, combined with realistic visuals to replicate the experience of flying either the Leonardo AW189, Sikorsky S.92 or S76 types.

"The signing of the MOU with Helicentre formalises a successful relationship that has been ongoing for the last 3-4 years," said Matt Rhodes, Bristow UK Director.

Career Days

Helicentre Aviation will be hosting three Careers Days in May with Bristow Helicopters. The careers days will be 15, 16 and 17 May at Helicentre's Leicester Airport bas. They will also be the first in-person careers events the Academy has hosted on-site since the pandemic.

Senior personnel from Bristow will be present, speaking to both prospective future aviators and existing pilots about pathways into rotary flying careers.

To apply for a place please visit flyheli.uk/careers-days and complete a simple registration form.



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I GET PAID FOR THIS

Flying a fuel station

Lt. Col. Brian Sikkema flies air-to-air refuelling missions all over the world
in the KC-135 Stratotanker

Words Yayeri van Baarsen | 17 April 2022



Brian Sikkema and the B-25 he's just been type rated to fly

How did you get into flying?

Flying is something I've always been interested in. My mum worked for a dentist who was also a pilot.

He took me up when I was eight years old and I was hooked from that very first flight. As soon as I got my driver's licence, the first place I visited was the local airfield, asking about flying lessons. At the age of 19 I obtained my PPL.

Tell us about your job?

I'm an Evaluator Pilot in the United States Air Force (USAF). Currently based at Fairchild Air Force Base, I fly the KC-135 Stratotanker. Since the K-135's main goal is air-to-air refuelling, that's what we do in most of our missions and training flights.

A boom operator in the back of the aircraft controls the refuelling boom, which connects to a receptacle on the aircraft that's being refuelled. Apart from aerial refuelling, we also occasionally move cargo and carry out aeronautical evacuations.

Normally I get to fly once or twice a week, but on a mission, it's more. We do CORONET missions all over the world, providing our fighter jets that need to go long distances with fuel.

In my role as Functional Check Flight pilot, I also fly the KC-135 after heavy maintenance, checking that all repairs have gone well and that it's safe to fly.

As an Evaluator Pilot, you need to have a willingness to learn and get better at what you do. Although I've been doing this for a long time, I still make mistakes... on every flight. Learning from these mistakes is the only way to improve, which is why I always ask the guys I'm flying with to call me out on any errors. Also essential is a sound judgement. People lacking these skills will struggle to do this job.

I get to do a lot of check rides with younger pilots, making sure the Air Force standards are upheld. Actually, most of my flights involve some kind of instructing. I love that: imparting knowledge is, hands down, the most rewarding part of my job. Every single day, I get to do things that I feel have an impact.



Brian's day job: flying a KC-135 Stratotanker on refuelling missions

What training did you have?

When joining the USAF, I did a year of Specialised Undergraduate Pilot Training at Vance Air Force Base. Then I did a course on the KC-135 and obtained this qualification in November 2008.

Afterwards I became an Aircraft Commander, Instructor, Evaluator, and in 2018 a Functional Check Ride Pilot.

Additionally, each Air Force base you're stationed offers a few weeks of training to get you fully mission qualified. It truly is lifelong learning!

What's been your favourite flight?

I can't choose... I loved having the opportunity to give my family their first aircraft ride. In 2005, I rented a Cessna 172 and took up my wife and oldest son. However, last summer I got checked out in a B-25, which belongs to the nearby Historic Flight Foundation museum. Flying that WWII bomber was one of the highlights of my flying career and getting the rating was like a dream come true.

And your favourite airfield?

Kangerlussuaq Airport in Greenland. I've flown all over the world and this airport sticks out because of how challenging it is. It's tucked into a fjord valley, you

literally fly in one way and out the other.

I've flown there in the summer of 2013, which was gorgeous, and in the winter of 2014, which was extremely challenging because of bad weather conditions. In fact, only the centre of the runway was cleared from snow. Landing there safely gave me a lot of job satisfaction.

Do you get to fly much outside of work?

Yes, I'm a Civil Air Patrol member and fly its cadets several times a month. It's so rewarding to see the grin develop on their face when the Cessna 182 takes off. Both my sons are members and last summer, I got to give my youngest son his orientation flight!

What's your most valuable career advice?

Bloom where you're planted. In other words: find satisfaction on the career path you're on, even if it's different from what you previously planned or imagined.



Flying the KC-135



FLYING CV

Next to his USAF career, Evaluator Pilot Lt. Col. **Brian Sikkema** takes up cadets in Civil Air Patrol orientation flights.

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UNUSUAL ATTITUDE

With Dave Hirschman

COLUMN

Aeroplanes and those who guide us...

3 May 2022

The aeroplanes we fly teach us a little. The people we fly with teach us a lot. During my time in the aviation game, I credit the Cessna 150 for showing leniency, the 170 for sweetness, the 172 for forgiveness, and the 180/185 for demanding a firm hand – sometimes two hands – on the tiller.

Stearman and Waco biplanes tangibly connect us to our shared aviation heritage, and they insist we take leaps of faith by taking off and landing without seeing directly ahead. The T-6 rewards anticipation and energy management, and it mercilessly punishes even momentary sloppiness or inattention.

The Van's Aircraft RV series embodies versatility, economy, and honesty.

The Pitts teaches finesse, rudder acuity, and relying on your instincts when reacting to surprises (and there are always surprises). The Extra is sleek and beautiful, and it's far stronger than any human. The Yak 55 is a ballerina and brute, and the Sukhoi 26 is a study in multiple personality disorder.

Warbirds like the SBD Dauntless demonstrate the courage of those who flew them in combat, and details like the slide-out navigation table give silent testament to the skill, bravery, and unimaginable loneliness their crews must have felt while finding their way across featureless oceans, often at night, on a single piston engine.

Corporate jets are intoxicating in the rare view of the world they provide from the high flight levels. They teach consistency, the beauty and value of close crew coordination, and the wisdom of striving to perform the same actions, in the same order, in the same way, on every flight.

As much as all this fancy hardware reveals, however, the people we fly with show far more.

My original flight instructor, Steve Pirani, was full of curiosity, a love of flight, common sense, and self-effacing humor. He didn't know every aviation fact, and he didn't pretend to – but his voice remains in my head decades later.

David Peeler, an immensely talented fellow aviator, talked me out of quitting flying when I got discouraged and was ready to walk away. His cocky self-assurance lifted me up when I needed it most.

Gary Austin, a former hot-rodder, became a consummate aviation mechanic and was seldom satisfied. He went about his work with ingenuity, flair, and artistry – and he had near total recall of the minute details of some of the most mechanically complex aircraft ever built. And in the cockpit, he was a hell of a stick and a fiercely loyal friend.

Steve Collins, a biplane ride operator, showed that a pugnacious, indomitable spirit trumps soft hands and subtle technique when the chips are down.

***‘My goal, for as long as I’m lucky enough
to be involved in this pursuit, is to
support and encourage others as I’ve
been supported and encouraged’***

My mum, Wilma Melville, the first pilot in our family, is persistence personified. When she earned an instrument rating at age 77 in busy, complex Southern California airspace, she accomplished a goal that I thought was far beyond her grasp. Then she used it to fly across the continent multiple times, day and night, in all sorts of weather.

Chris Smisson was an irresistible force of nature. From gliders to afterburning military jets, just about everything that flew delighted him. He radiated that joy, and he saw talent in others that they themselves didn't know they had.

Clint Williams was an extraordinary pilot who came from the humblest circumstances yet went on to fly supersonic fighters. As a CFI, however, he valued teaching over stick-and-rudder skills – and he prided himself on touching the controls as seldom as possible. He had a master teacher's ability to adjust his delivery to connect with individual students of vastly different backgrounds.

Morris Ray exemplifies both determination and generosity. He struggled with formation flying when he first began learning it. But he mastered that art in

detail through sheer tenacity, and then he helped many others pursue it themselves. Every task was more understandable when Morris filtered, explained, and demonstrated it through the lens of his own hard-won experience.

Mike Filucci models supreme patience. A former military pilot, airline pilot, and cancer survivor, he doesn't let aviation's many annoyances ruffle him. Getting cut off in the airport traffic pattern, delayed by ATC, or scrubbing flights for weather or mechanical issues are trivial compared to aviation's grandeur. It's so much bigger than those nagging trifles.

Mike Fizer is an aviation photographer, not a pilot, but the time we've spent going to, preparing for, and coming home from aerial photo missions showed me the value of hard work and preparation. Mike works thoughtfully and relentlessly. And when unexpected opportunities crop up – such as finding the late warbird pilot Connie Edwards at his dusty West Texas airstrip overseeing hangars stocked with neglected warbirds, Mike pounces. He documented that uniquely implausible stash using specialised lighting equipment and video gear that I didn't even know he owned, or that he had brought with him. Evidently, he'd been carrying it for years, waiting for just this kind of moment – and when it came, he made the most of it.

I could go on – but the point is that everyone has a story, and something to contribute, to our aviation community. For pilots, listing the aeroplanes we fly is the Cliff's Notes version. The richness of our experience, however, comes from the people who shape us and make flying possible, worthwhile, and memorable.

My goal, for as long as I'm lucky enough to be involved in this pursuit, is to support and encourage others as I've been supported and encouraged. It's the best way to strengthen our community and honour those who have guided us.



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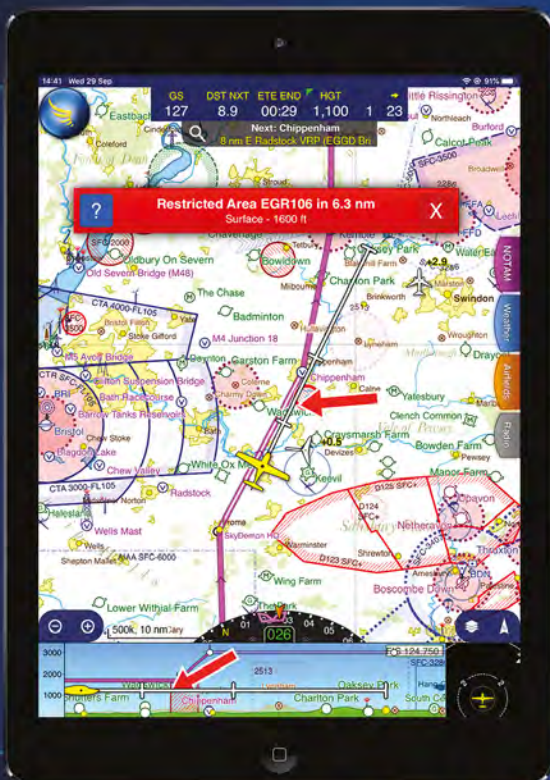
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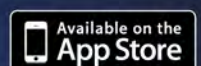
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FULL THROTTLE

With Mark Hales

COLUMN

Please sir, can I have some more...?

Mark Hales | 29 April 2022

You know that moment, when you're rolling down a short grassy runway, eyes glued to the fence in the distance, hand firmly clasped round the throttle knob like your instructor said you should. It's the moment when you want another 100hp... The gauge says 2,300rpm but it just feels so sedate... 'come on, come ooon...'

You have no sense that the venerable 6.3 litre Lycoming is working as hard as it can and that the 74-inch Sensenich, which is bolted to the front is a heavy metal disc of life-threatening energy. Out of sight and out of mind. All you want is more...

I've spent a while in Geoffrey's dynamometer cell, watching a 1970s Ford 2-litre race engine turning at 9,000rpm, and you definitely don't want to stand close. It's not the noise of the exhaust which is piped to a silencer outside the wall, but the mechanical noise which is a harsh, shrieking concert of banshees, that and threatening sense of pent-up energy which is something you can feel.

I was reminded of just this only last week. I had tied my Jodel's tail to my van with a ratchet strap, getting ready to perform the tooth-gritting process, which is running the engine at full power for at least a minute, preferably two.

It's only the same exercise as rolling down the runway, and if all the bits I've assembled round an automotive diesel engine will do that without hesitation or explosion, I can expect them to hold together long enough to get me to 500ft, or preferably 1,000ft. Enough to glide a Jodel back to the field. That said, I was still not prepared for the sheer violence of the whole process. Switch on, clatter the starter and let it rattle away for a while to warm up. After a quiet few minutes, I can't put it off any longer and I start to wind it up. I notice that the assembled onlookers all take a pace back.

I bounce in the seat for what seems like an age while the tail strains at the strap. I so want to pull the power back before the minute is up rather than wait for two or crank the lever in search of more. I guess all of us were waiting for the huge bang but, explosion came there none...

Maybe it's more nerve racking because I've built it myself, and it's not proven, yet. Lycomings, Continentals and Senseniches just never explode, even when they go wrong. Maybe it's because the engine is turning faster, more like Geoffrey's Ford than Teledyne's Lycoming...

I have since done the above several times, and I have now flown it, more of which in a while.

But, talking of diesel aircraft engines, these are now slightly more common in the modern era, mainly thanks to Frank Thielert's original Mercedes A-Class conversion fitted to the Diamond twins (and Robin's DR401), followed by Diamond's Austro which is another Mercedes conversion born of the confusion created by Thielert's bankruptcy and the limbo between that and the acquisition by Continental Motors and eventually Chinese investors (who also own Diamond). With me so far... Despite this apparent variety, there are still very few diesels in the air, but diesels in general aren't new.

“After a quiet few minutes, I can't put it off any longer and I start to wind it up. I notice that the assembled onlookers all take a pace back”

Packard was the first to fly one in 1929 and on 28 May 1931, a [Bellanca CH-300](#) fitted with a 225HP Packard DR-980, stayed airborne for 84 hours and 32 minutes, a record which endured until broken 55 years later by the [Rutan Voyager](#).

Across the pond, Bristol Aeroplane Company modified one of its Jupiter radials for compression ignition in the late 1920s to create the Phoenix which in supercharged form was fitted to a Westland Wapiti biplane to set an altitude record of 27,453 ft (there's a picture of it just above Everest) in May 1934, where its frugal use of fuel allowed it a long time to get there.

In Germany, BMW dieselised a licence-built Pratt and Whitney radial and Junkers built the 700hp opposed-piston Jumo which saw service before and during the conflict.

Like the Packard Bellanca, all of them made good use of the compression ignition engine's more modest appetite for gas oil. The one that has really piqued my

interest though is the Klöckner-Humboldt-Deutz, air-cooled eight-cylinder two-stroke diesel radial of 1937.

It was the brainchild of Adolf Schnürle, the German genius who developed a system of porting which created a loop of gas in the cylinder and helped both to exhaust the spent charge and pull in the fresh one.

His DZ700 ran successfully and led to a six-cylinder version intended for a fleet of trainers but development was paused because of the war.

The headline then, is... that the DZ700 produced 158hp at 2,800rpm from 245 cubic inches (an O-245 then...), measured three feet in diameter, weighed 120lb and could run on AVTUR, or used fish and chip oil, or if you must, road diesel at £1.70 a litre. And yes, you read that correctly... 120lb is 55kg and the Rotax 912ULS, which is considered the lightest of the general current aviation powerplants weighs exactly the same for half the power, and it needs a radiator.

Schnürle's DZ 700 apparently still exists somewhere in Germany, but where's the damn thing when we need it... Like NOW. It would look very cool indeed behind a bumpy cowl on the nose of a Jodel. Wonder if there's any drawings anywhere...

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SQUAWKS

With Ian Seager

COLUMN

AERO musings...

Up at crazy o'clock to head for Friedrichshafen... but what an uplifting experience!

4 May 2022

At 4am on the day before AERO opened, the team met in a godforsaken hotel lobby to begin the pilgrimage to Friedrichshafen. It was my first commercial flight since Covid, and the experience had me feeling like an amateur as I bumbled my way through the now unfamiliar airport security.

We would have loved to fly ourselves, but with four in the team and the need to guarantee an on-time arrival, it just didn't work out.

It took the best part of 10 hours to get from that hotel to the exhibition halls, but the frustration of commercial flight with its multiple queues and checks was soon forgotten as we toured the semi-built stands for signs of the opening day's big stories, of which there were plenty.

For me, the underlying enthusiasm and optimism was the real story of the event. Clearly the fact that the show was actually running (after two missed years thanks to Covid), had some part to play in that, but pretty much every single manufacturer or supplier I spoke to was upbeat and enthusiastic – with numerous reporting full order books with delivery dates many months or even a couple of years away.

General Aviation is being affected by both supply chain issues and the lack of a skilled workforce, challenges for which there's no quick fix.

Our coverage of the event can be found [here](#), but while the Junkers A60 (and ambitious JU-52NG), as well as the TurboTech lightweight turbine may have been hogging the headlines, there were a couple of quieter stories that I think will have a longer, more profound effect.

First up is Textron's purchase of Pipistrel. I must admit to my own eyebrows being raised a bit when I heard that news, and I certainly wonder if the traditional behemoth will be able to nurture, rather than stifle, the brilliantly innovative Pipistrel, but early signs are positive and apart from anything else, it seems the Panthera will, under the Textron banner, be on a fast (well, fast-ish) track to certification.

When it finally comes to market (Pipistrel has been talking about certification since about 1903) it'll be up against the Cirrus SR22 and DA50, and in that space, having the Textron brand behind a product will be a significant strength.

“Expect to see a much larger number of manufacturers building and selling a much larger number of types for use throughout EASA land...”

I also had a good chat with Dominique Roland, the Head of Policy, Innovation & Knowledge Department at EASA. Dominique's a big GA fan, has a share in a TB20 and won the Breitling World Cup of Aerobatics back in 1995 and is clearly very passionate about GA. We spoke a bit about the upcoming Part 21 Light.

Part 21 itself contains the regulations that define the design and manufacture of aircraft. For the many smaller companies in GA the regulations have been onerous, expensive to comply with and not at all in proportion to the GA aircraft or activities they sought to regulate. It would be no exaggeration to say that the traditional Part 21 requirements have stopped a significant number of smaller companies and lighter types making it to market.

Part 21 Light seeks to address that, and even contains provisions for self-declaration when it comes to design and production approvals.

Expect to see a much larger number of manufacturers building and selling a much larger number of types for use throughout EASA land... if the CAA can follow suit, and maybe even go for mutual recognition, sport aviation in the UK will be in for some truly exciting times, particularly when combined with the 600kg microlight category!

I kept my eyes open at AERO for something lighter and further away from the drudge that is the current regulatory complexity. Something that might play a larger part in my aviation future.

The MCR Sportage caught my eye, but doesn't quite tick all of the boxes, which I guess means that I'll have to go back next year for another look – 4am in the lobby in 12 months' time...?



NEWS SPECIAL

AERO Friedrichshafen 2022: Around The Halls

What can be found around the halls at AERO Friedrichshafen? The *FLYER* team discovers weird and wonderful tech and more...

30 April 2022



The amazing eMagic One is the creation of Michael Kügelgen, and is a personal eVTOL that can fly conventionally using winged lift and a 40kW electric motor driving a tractor propeller, and eight 15kW motors for vertical lift. The aircraft has one hour's flight endurance.



Tecnam Aircraft, Rolls-Royce and Rotax collaborated to create the P2010 H3PS hybrid power technology demonstrator. It's the first General Aviation aircraft with a parallel hybrid configuration to fly. There's an electric motor behind the Rotax that connects to the engine's crankshaft to provide a power boost for take-off, and start the engine. The engine then charges a battery in cruise. The combination saves weight and offers greater efficiency than the 200hp conventional four-cylinder aircraft engine it replaces.



A really sharp-looking machine, and one of the stars of the show, the JMB VL3 Turbine fitted with TurboTech's turboprop engine will cruise at 156kt burning a remarkable 19 litres an hour.



If you needed the 'go-large' option at AERO, then Beechcraft have the King Air 360 to help with that...



A splash of British homebuilding colour was well provided by Andy McKee and his well-travelled Silence Twister.



A beautiful example of the homebuilder's art, this Breezy (you can guess why it has that name...) is powered by a converted Mazda RX-7 Wankel car engine.



How about a new twin - this is Alpi Aviation's Pioneer Twin, which will be able to use a variety of Rotax engines up to the 141hp 915iS.



Extra Aircraft are celebrating their 50th Anniversary this year, and have also delivered their 800th aircraft.



Blackshape Gabriel - Winner of the viewers' vote (and Jonny's choice) on Thursday night's FLYER Livestream Fantasy Hangar



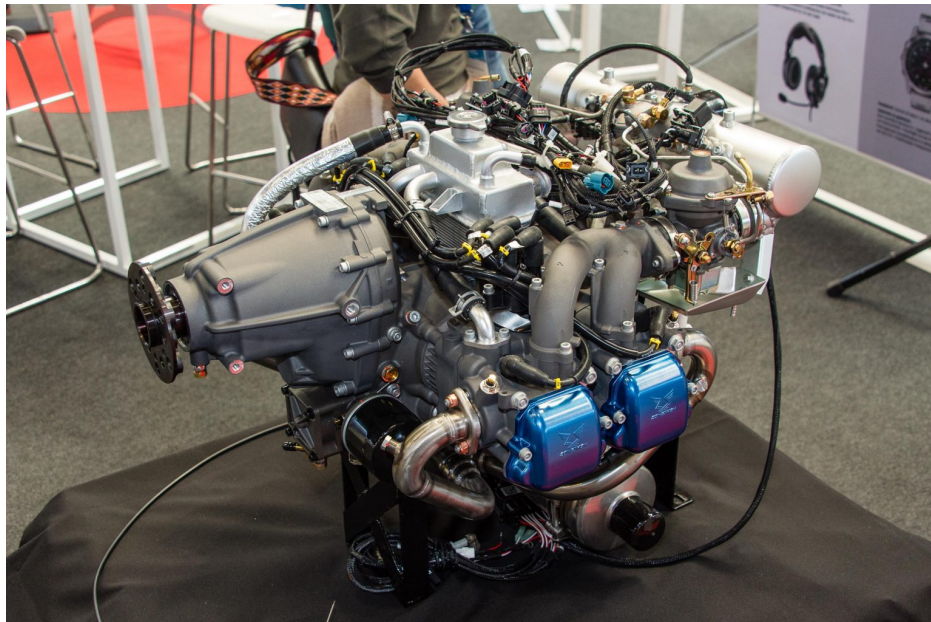
Look who's at AERO! Yes, the real Zara Rutherford is on the Shark stand (as well as a life-size cardboard cut-out)



Latest gyrocopter from Magni is the M26. It has two seats in tandem, powered by a Rotax 915iS and the finish is immaculate



Fancy a three-quarter scale version of a Textron Texan T6-A, the USAF and Navy trainer? This is made by Squadron Leader Aircraft of Italy, and is constructed mostly from aluminium with some composite non-structural parts. It's powered by a Rotax 912 Turbo. It's an awkward weight at 650kg max takeoff, meaning it's over the 600kg microlight limit though the company says it's working on a 600kg version.



Chinese company Chongqing is displaying this C145HT unit in the Flieger Engine Display. It's a pretty good copy of a Rotax 912 producing a claimed 107kW. Chongqing is linked to RED Aircraft, makers of the V12 turbodiesel, as their agent in China, but there are no plans to import the C145HT to Europe... yet.



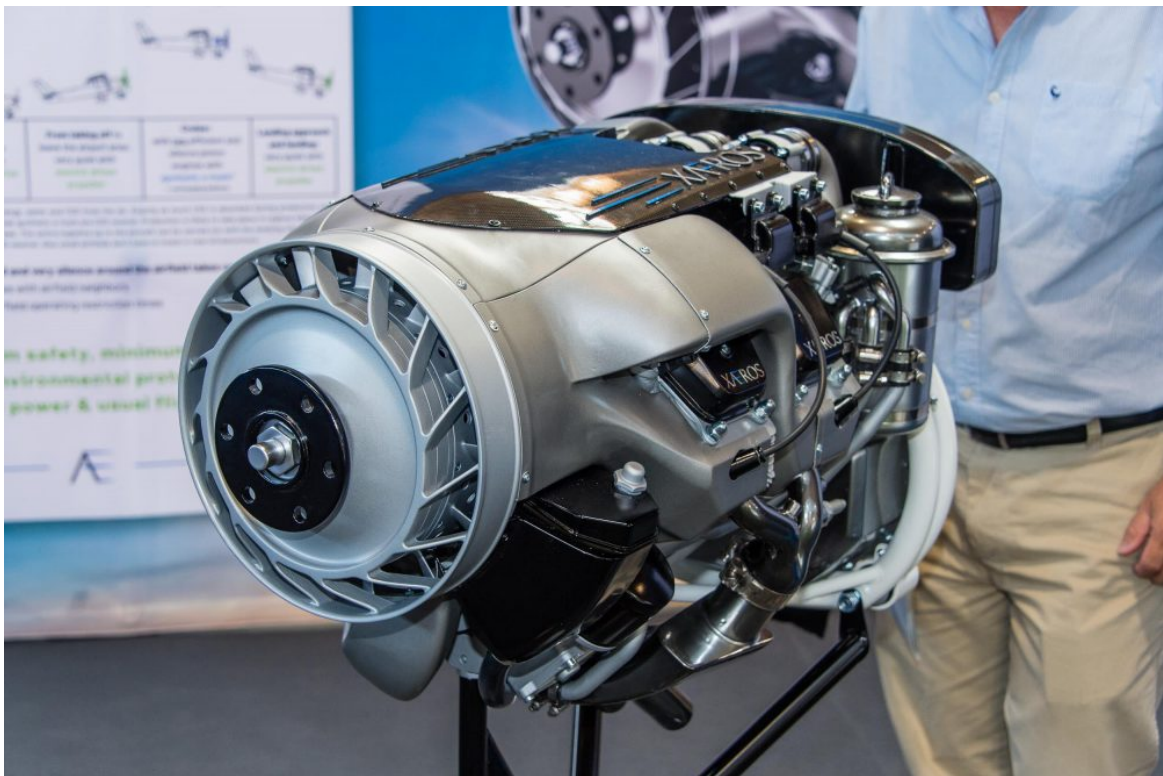
The Seagull is a new seaplane from Italian company Novotech, aimed at both civilian and military customers. It's an ambitious project with a two-seater powered by a choice of propulsion systems: electric, hybrid and internal combustion. There's even a vertical take-off and landing version mooted for the future.



Ikarus Comco is showing an electric version of its popular C42 microlight, which uses a propulsion system from Geiger Engineering giving 50kW max continuous power and 74kW for take-off. It has 8 lithium battery packs weighing 15kg each that are good for 60 minutes flight leaving 15 minutes reserve.



Mustang in miniature! The Scalewings SW-51 Mustang in its rivet perfect glory.



A new product, Xaeros plans to offer its 200 Hybrid as a direct swap to conventional aviation engines. Two V2 four-stroke motors combine with an electric motor on a single shaft, with Fadec control. System power is 270hp, with a maximum continuous power of 160hp. Xaeros is actively seeking investors.



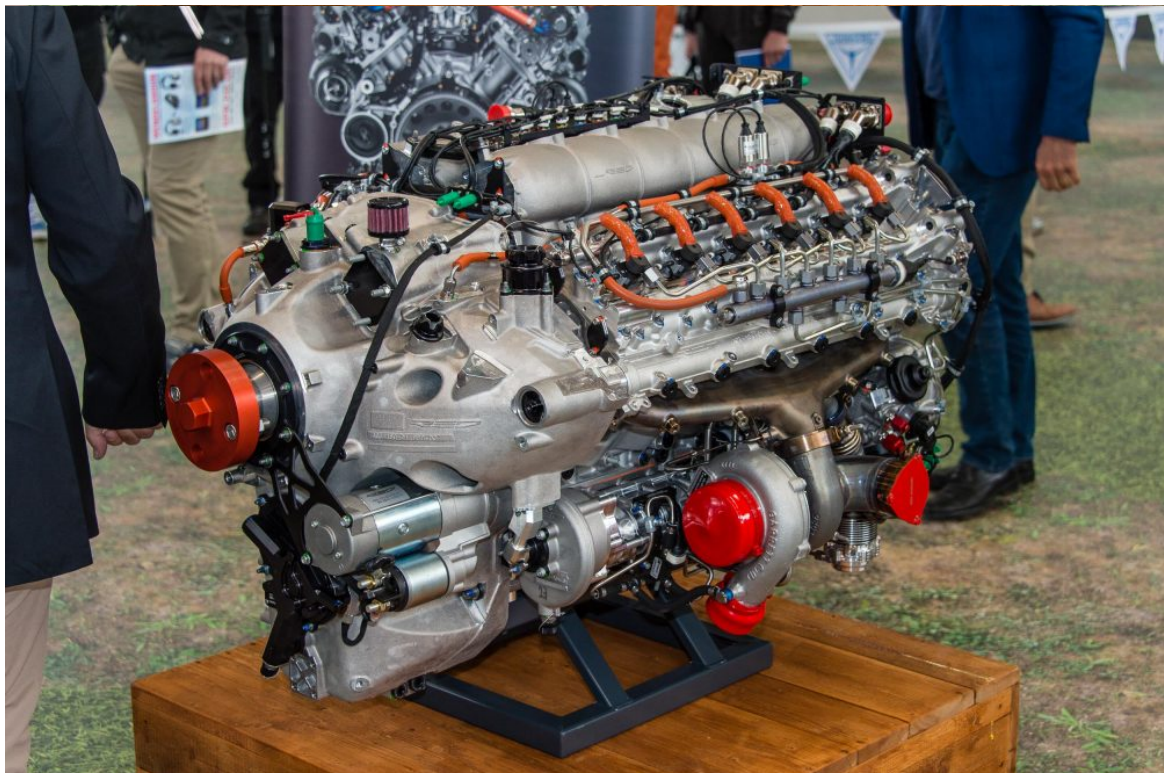
There are TWO turbine engines for light aircraft at AERO. This is the Heron Turboprop which, like the TurboTech turbine, produces 130shp but is more compact. However, fuel burn is 40 litres/hour.



JH Aircraft's latest iteration of its Corsair SSR, powered by electric motor and... and!... it will have folding wings, just like the real Corsair! How cool is that!



The Swan S500 known as the 'Dracula' powered by either a 30hp petrol engine or electric motor. The giving (or taking of) blood isn't essential...



This is the RED A03-005 V12 turbodiesel engine that's going to power the just-announced Junkers JU-52 tri-motor project. It's type certified by EASA and already going into a number of aircraft, so a proven concept for the Junkers.



As if the replica Junkers wasn't enough for aviation mad Dieter Morszeck, he also owns and runs WACO Aircraft and this gorgeous YMF-5D is on the stand.



Aquila has been promising a four-seater for a while and brought along this mock-up. No date for the finished aircraft though.



Is it a plane? Is it a gyrocopter? The Tensor 600X combines qualities of both, with a range of 600km and a max cruise speed of 200km/h. Engine is the now ubiquitous Rotax 915iS.



This pair of red beauties catch the eye in one corner. On the right is an instantly recognisable Beech Staggerwing but who knows what the aircraft on the left is? FLYER's Ed Hicks, of course. It's a Klemm 35, modified to single cockpit with a more powerful engine.



ULPower's latest engine is the UL520T. It's turbocharged but just to 'normalise' it for higher altitudes. Max power is 220hp up to 15,000ft.

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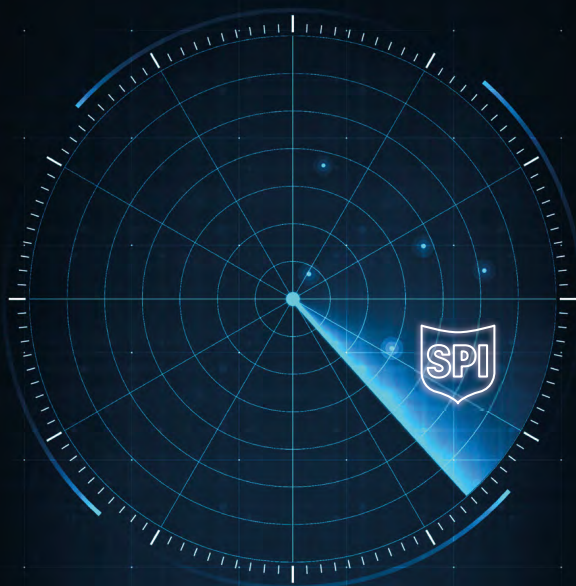
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Diamond eyes huge rise to 500 aircraft deliveries a year by 2024

27 April 2022



Diamond Aircraft expects to be delivering more than 500 aircraft a year within two years, as a new manufacturing facility opens in China to complement existing plants in Austria and Canada.

That's double what Diamond is producing at the moment – 240 aircraft in 2021 with 300 expected in 2022 – but CEO Frank Zhang says current orders have already filled production capacity for this year and next.

All models in the Diamond range are experiencing increased demand. The two-seat DA20 is back in production, the DA50 RG is expected to receive US type certification by the end of this year and 40 will have been delivered by the end of

2022, and the top of the range DA62 twin also has a two-year waiting list for new aircraft.



Diamond DA50RG

“Two years is too long,” said Mr Zhang at AERO Friedrichshafen earlier today. He also confirmed that more orders were coming from private owners to match training fleets 50/50.

The booming order book is also reflected in demand for Austro engines, a Diamond subsidiary also acquired by Chinese owner Wanfeng when it took over in 2017. Austro produced 367 engines in 2017, which will rise to 800 by the end of 2022 and an expected 1,280 engines a year by 2024.

Diamond also buys CD-300 engines from Continental Aerospace Technologies for the DA50 RG, and that engine has just received a welcome boost in its Time Before Replacement (TBR) limit, from 1,200 to 2,000 hours. The separate gearbox limit of 600 hours has also risen to ‘on condition’.

Mr Zhang attributes the rise in demand to the company’s global outlook in terms of suppliers, but also the ‘local for local’ philosophy for production; ie, manufacture aircraft where they are expected to be sold.



Diamond eDA40

On the Diamond stand at AERO, a mockup of the electric eDA40 **announced last October** is on display. This uses batteries from US supplier EPS and a French Safran electric propulsion system.

The eDA40's flight time ambition is 90 minutes, allowing one-hour flight lessons with 30 minutes reserve. First flight of the eDA40 is expected by the end of 2022, with type certification in 2023 and entry-into-service in 2024. Running costs are said to be 40% of a traditional internal combustion engined DA40.

The eDA40 will also have Direct Current fast-charging, which is claimed to cut recharge time to 20 minutes. The Safran motor used, the ENGINEUS 100, will deliver 130kW at max take-off power.



In response to a question about Aircraft On Ground (AOG) parts supply, Diamond's service manager said the current levy on parts for AOG aircraft was an 'emergency situation' while they build up the logistics side to cope with growing numbers of aircraft in the worldwide fleet. This would be dropped as soon as they can meet demand.

Diamond Aircraft

NEWS

Elixir shows 150kt 915iS two-seater, reveals hydrogen-electric future

27 April 2022



Elixir 915iS

Elixir Aircraft unveiled a new, more powerful version of its two-seat aircraft, the 915iS, at the opening of AERO Friedrichshafen today – and also announced a future hydrogen-electric version is under development.

The new aircraft is powered by the turbocharged 141hp Rotax 915iS engine and is undergoing CS-23 type certification with EASA. The aircraft is also equipped with what's likely to be the IFR fit for both the 915iS and the existing 912iS Elixir, currently certified for VFR flight.

Elixir co-founder Cyril Champenois told *FLYER* that the aircraft had been designed from the beginning to accept the 915iS engine. “Rotax showed us the 915 and we knew then that it would be the future,” he said.

However, it's taken considerable development to maintain the Elixir's spin-resistant design, with the wing being extended by 420mm and bigger winglets fitted.



Bigger wingtips and a longer wing are fitted to the 915iS Elixir to maintain its spin-resistance. Photos: Ed Hicks

Performance is considerably boosted over the standard 100hp aircraft, with an expected climb rate of 1400-2000ft/min and a cruise speed of 150kt at a 75% power setting. No price has yet been announced.

Elixir revealed it is working with French company **Turbotech** to develop a hydrogen-electric propulsion system with a target of certification in six years. Turbotech is also at AERO with its turboshaft engine, being used in JMB Aircraft's VL3, and also showing its new turbogenerator power unit which can burn multiple types of fuel to drive an electric generator.



Elixir is also working towards an IFR equipped version and the 915iS shows where it's heading: twin Garmin G3X and G5 backup

Meanwhile, Elixir is expanding its production facilities at its La Rochelle, France base. It now employs 65 people, has eight aircraft flying at the moment and plans to deliver a total of 22 this year. It has 40 firm orders, 100 'interested' and has full order books for the next year of production.

The company is also targeting sales in the USA with the FAA and EASA working together to certify the €235,000 Elixir 912 in North America.

Elixir Aircraft

Flight Design: no new aircraft because of Ukraine war

28 April 2022



No new aircraft will be delivered by Flight Design until October this year at the earliest because of the disruption to its Ukraine manufacturing base.

The Russian invasion of the south and east part of Ukraine includes the city of Kherson where Flight Design's facilities are located. Although staff are unhurt and the factory is still intact, Flight Design cannot get new materials in or out.

The German company is building capacity at its base at Sumperk in the Czech Republic, which already has EASA Production Approval, and expects to start delivering new F2 aircraft in October.

However, no date has yet been set to restart production of the long-running – and best-selling – CTLS which fits both the light sport aircraft and 600kg microlight categories. More news on CT production is likely in July this year.

For the time being Flight Design is concentrating on manufacturing spare parts and supply, as well as technical support to keep the existing worldwide fleet flying. The company is also running a donation scheme to help Ukraine staff and also to help any staff fleeing the conflict and arriving in Germany.

This year, 2022, should have been completely different with more than 80 confirmed orders for the CS-23 type certified F2 two-seater. The company is continuing to work on the IFR version of the F2 with expected EASA certification in 2023. A Night VFR version is expected later this year. Already, the US is showing more interest in the certified IFR version than VFR.

The four-seat version, the F4, should make its first flight in 2023 with EASA certification in 2024, said the company. The estimated price for the F4 is €300,000 – “the world doesn’t need any more 600-700k four-seaters,” said a company spokesperson, “and we expect high numbers of orders for the F4”.

Electric Flight



The hydrogen fuel cell powered Flight Design F2. Top photo shows the under fuselage air intake

Flight Design is taking a two-pronged approach to electric power for the F2. Its own project is the F2e, powered by a 75kWh battery, with a target of EASA certification in 2024/25.

However, it's also working with HYFLY on a hydrogen fuel cell system. A demo aircraft on display at AERO – complete with a hanging hydrogen molecule to emphasise the point –with a large under fuselage air intake to cool the fuel cell.

HYFLY is a project by two German companies, Kasaero and PS-Hytech, to develop and produce a fully integrated fuel cell system for aircraft that's light,

long range, zero emission and costs less to install and operate than conventional power systems.

Flight Design

For sale: Aeropro Vision complete aircraft project

27 April 2022



Just imagine, for a minute, that you're an aircraft manufacturer looking for a modern two-seater to put into production.

You could spend seven to ten years and many thousands of pounds developing your own... or you could buy the Vision from Slovakian company Aeropro as a complete, ready to manufacture, 600kg light sport aircraft.

Aeropro is the established manufacturer of the highly popular Eurofox two-seater, recently approved as a Light Sport Microlight in the UK and across most of Europe.

But ten years ago, the company started to develop the Vision, as an ultra modern, comfortable, fully-featured and roomy two-seater in the Light Sport Aircraft category.

The first proof of concept aircraft flew back in 2012, using parts from the Eurofox but now there's the second fully-finished aircraft. That made its first flight in 2020 and has been designed from the outset to meet EASA's CS-LSA building code for European certification and ASTM F2245 for certification in the USA.



However, Aeropro does not have the capacity or means to put the aircraft into production – it's flat out making the Eurofox. So it has put the entire Aeropro Vision project up for sale at AERO Friedrichshafen.

“We are looking for buyer who already have experience in this segment of aviation business,” said a company statement.

“We are selling a product – the LSA aeroplane Vision – which is ready for production. It is suitable for companies which have already have experience with aviation production, or a company which has some aviation history or looking for a ‘production program’.

“We offer very modern aeroplane with high performance in LSA category.”



The offer:

- Complete set of high quality composite moulds
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- Technological drawings and documentation with guidelines of production
- Full 3D virtual model of aircraft with each part
- Technological support provided by Aeropro company in the contracted period

Interested? Contact Aeropro at the show or via its website.

Aeropro Vision

Hydrogen powered HY4 sets records enroute to AERO

21 April 2022



The four-seat HY4 aircraft with a hydrogen-electric powertrain has set a world record for altitude and flown the 77-mile journey between its base at Stuttgart to Friedrichshafen, ready to be shown at next week's AERO event.

H2FLY is a Stuttgart-based developer of hydrogen fuel cell technologies for aircraft. Its demonstrator aircraft, the HY4, set what is believed to be a new world record for hydrogen-powered passenger aircraft, flying at an altitude of 7,230ft.

The flight from Stuttgart and Friedrichshafen was also the first time a hydrogen-electric passenger aircraft has been flown between two major airports.

Prof. Dr. Josef Kallo, co-founder and CEO of H2FLY said, "This is a remarkable achievement for H2FLY, as no other hydrogen-powered passenger aircraft has flown between two commercial airports to date.

“We are also thrilled to have set what we believe to be a new world record by reaching an altitude of over 7,000 feet with our HY4 aircraft.

“We want to thank our long-time partners Stuttgart Airport, University of Ulm, DLR Stuttgart, Friedrichshafen Airport, and AERO Friedrichshafen, for supporting us in our mission to make sustainable travel a reality.”

The HY4 will make its public debut at AERO Friedrichshafen. Up to now, testing of the HY4 has taken place exclusively in the test area around Stuttgart Airport.

The four-seat HY4 serves as a test platform to develop the propulsion system which will lead to a hydrogen-electric-powered, 40-seat Dornier 328, which will be developed jointly with Deutsche Aircraft by 2025.

Head of AERO Roland Bosch and show director Tobias Bretzel said in a joint statement, “Sustainable aviation is the central topic at this year’s AERO Friedrichshafen.

“We are, therefore, really pleased that Prof. Dr. Kallo and his team from H2FLY are celebrating a trade show world premiere at AERO Friedrichshafen with the HY4 hydrogen-electric aircraft.

“With the AERO Sustainable Aviation Trail, we are illustrating how innovative the entire general aviation sector and this year’s AERO are with over 75 registered exhibitors on this sustainability trail in 11 exhibition halls.”

NEWS

Junkers shows new A60 two-seater and reveals JU-52 project

26 April 2022



Junkers A60 proof of concept aircraft shown at AERO. Photos: Ed Hicks

The new Junkers Aircraft Company sprang two early surprises at the AERO General Aviation show being staged at Friedrichshafen, Germany this week.

The first was the A60, a two-seater with side-by-side seating and retractable undercarriage which will go into production next year. Like its stablemate, the Junior A50, the A60 meets the criteria for the 600kg microlight class and is powered by a 100hp Rotax 912iS engine. It can be operated with an open cockpit or enclosed.



Junkers A50 and A60

The 1930s inspired A50 meanwhile is expected to receive approval from the German aviation authority, the DULV, as a 600kg microlight this summer. The first 29 aircraft will be priced at €179,000 and one-third have already been sold.

The second big surprise was the announcement of a new project to build replicas of the famous three-engine Junkers JU-52, reengined with three RED A03-005 V12 diesels each producing 550hp.



Yes, Junkers is planning to develop a three-engine JU-52 NG

The JU-52 NG, will be built using the same corrugated aluminium sheet metal skin over a hollow frame. The fuselage can be configured to hold six cargo pallets

or 14 passengers, or a mix of the two. Avionics will also be modern, from Garmin and include both VFR and IFR options.

Figures released so far by Junkers Flugzeugwerke AG, claim a max take-off weight of 8,616kg, cruise speed of 180km/h (97kt) and a fuel burn of 77 litres/hour for each engine.



The JU-52 NG will have modern engines – the 550hp RED A03-005 V12 diesel

“This aircraft is simpler in operational handling than any other of its kind,” said a Junkers statement.

“No complex systems for refueling, no special equipment for loading and unloading, and flight characteristics that allow take-off and landings on short and unpaved areas.

“The absolute highlight, however, is the use of the JU-52 NG for sightseeing flights. There is no better aircraft than the JU-52 NG for this type of flight.

“Imagine sitting as one of 14 passengers in the JU-52 NG, each with their own window seat, flying slow and low in front of the New York skyline. An experience you will never forget!”

Junkers Flugzeugwerke

MCR revives Dyn'Aero designs with two and four seaters

29 April 2022



Remember the Dyn'Aero Banbi? It's now the MCR Sportage and available with a tailwheel. Photo: Ed Hicks

MCR, a French company originally set up in 2012 to manufacture parts for aircraft produced by defunct Dyn'Aero is now manufacturing a full range of two and four seat aircraft based on those designs.

Based in Pontarlier, France, near the border with Switzerland, MCR was founded by Eric Fumey to make airframe parts of the Dyn'Aero range of MCR aircraft. But as the company grew in numbers and expertise, the desire to make complete aircraft was kickstarted with the MCR ULC Evolution at first, in 2017.

Then in 2019, it was followed by the MCR 4S Evolution, a development of Dyn'Aero's 2002 four-seater and now powered by a Rotax 915iS. A second production unit was also set up at Ponte de Sor Airfield in Portugal.



This is MCR's four-seater, the 4S Evolution, now available with a Rotax 915iS. Cabin is remarkably big for a relatively small aircraft

Despite the worldwide pandemic of 2020-21, MCR continued to develop its product line and is showing two of its most popular aircraft at AERO Friedrichshafen this year: the latest MCR 4S Evolution and the MCR Club Sportage two-seat tailwheeler that fits into the 600kg microlight class.

The MCR 4S Evolution is available with three levels of Rotax power unit offering 100, 115 or 141hp. The top of the range 915iS powered model has a max take-off weight of 820kg giving a payload of 420-450kg depending on equipment fit and empty weight. Cruise speed is 132kt and fuel burn averages 26.5 litres/hour.

The Sportage can be operated with 80, 100 or 115hp Rotax engines, with a max weight of 490kg and a payload of 195-225kg. Cruise speed is 135kt with a max speed of a claimed 156kt.

MCR offers its aircraft as homebuild kits or, through a special arrangement with a sister company, they can build the kit and provide a ready-to-fly aircraft – an option which has a special registration system in France, known as F-P(XXX – rest of reg).

MCR

NEWS

JMB Aircraft flies turbine VL-3 microlight

19 April 2022



+VIDEO Belgian aircraft maker JMB Aircraft has flown a turbine-powered version of its fast microlight, the VL-3, and will be showing the aircraft at next week's AERO22 event.

The first flight with the aircraft equipped with a TurboTech turboshaft engine was at Valenciennes airfield with CEO Jean-Marie Guisset at the controls.

“The first tests are very promising indeed!” said Jean-Marie. “We are continuing the tests to validate the performance, but the advantages are already visible: no vibration, quieter than the VL-3-915, higher reliability and a TBO multiplied by two.

“Moreover, VL-3 turbine is easier to fly than a traditional piston aircraft, thanks to the electronic management of the FADEC and its unique lever.

“We also noticed a major consumption gain, in comparison to the traditional turboprops, thanks to the heat exchanger. Kerosene price is also a good advantage compared to the fuel normally used.”



Company boss Jean-Marie gets ready for the first flight of the VL3 turbine. Photos & Video: JMB Aircraft

JMB Aircraft has been developing the turbine VL-3 for the past six months, with more than 50 hours of ground tests including 30 hours of full power testing.

Since the first flight, more than 20 flight hours have taken place with no technical issues.

JMB Aircraft

NEWS

Tecnam reveals two-seat P-Mentor 'do it all' training aircraft

16 April 2022



Tecnam has announced a new training aircraft capable of delivering Private Pilot Licence (PPL), Instrument Rating (IR) and Upset Recovery Training (UPRT). It's the Tecnam P-Mentor.

The aircraft will be launched at AERO Friedrichshafen later this month and received its EASA type certificate on 7 April 2022.

The Italian manufacturer says the two-seat single-engine P-Mentor is “a simple and sustainable solution to guide student pilots from their first flight up to Instrument Rating, covering IFR, PBN and RNAV”.

Features include a variable pitch propeller, autopilot, simulated retractable gear control (undercarriage is fixed), and a ballistic whole-aircraft recovery

parachute. The engine is a Rotax 912iSc, coupled with an MT constant-speed propeller.

The P-Mentor has an all-new wing with a tapered planform and laminar flow airfoil, says Tecnam. The wing has a mixed structure, using light alloy for spars and wing box, CFRP for the one-piece leading edge.

The wing design allowed the P-Mentor to pass the latest CS-23 Amendment requirements for low speed and stall characteristics without a ballistic recovery system being essential part of the aircraft configuration. However, BRS is approved and available as an option for customers who require additional safety add-ons. An integral fuel tank is located behind the main spar and offering 130 litres fuel capacity and more than 9 hours endurance.



Cabin of the new Tecnam P-Mentor. Photos: Tecnam

In the cockpit, the P-Mentor has Garmin G3X avionics with a Garmin GI275 as a back-up instrument and multiple configurations to allow PBN/RNAV as well as GFC 500 autopilot training.

“We are delighted to present the P-Mentor today,” said Tecnam managing director, Giovanni Pascale.

“I am sure this new design will revitalise the trainer market, helping many flight schools to remain competitive and profitable and making new student pilots happier and more proficient. Real sustainability, fuel economy and profitability start here.”



Tecnam's new P-Mentor already has its EASA type certificate and will have its public debut at AERO Friedrichshafen

Tecnam CEO, Paolo Pascale, added, "When I see a new type certificate with this model's name, I think of my father and my uncle, Prof. Luigi Pascale, the men who started this adventure."

Tecnam Aircraft

Turbine, piston and electric power for Bristell's B23

27 April 2022



Just one of four new projects on the Bristell stand, the turbine powered B23. Photos: Ed Hicks

How many exciting new projects do you want on a show stand? One, two? How about four? That's Bristell, displaying a turbine version of its B23 low-wing two-seater, the same B23 with a Rotax 915iS engine, a B23 with the Swiss H55 electric propulsion unit, and the B8 high-wing two-seater.

The B23 Turbine first. The power unit is the 130hp turboshaft motor from French company Turbotech (the same as fitted to the JMB VL3 Turbine) and although the engine alone costs €90,000, it does have a TBO of 3,000 hours and gives a claimed fuel burn of 25 litres/hour. It's also much smoother than a piston engine.



Turbotech TP-R90 turboprop

However, Martin Bristella, son of company founder Milan, explained that he and his father wanted to build the B23 Turbine because of the challenge, rather than as an addition to the range.

“It’s more of a hobby aircraft,” he said. Apart from the cost, not all countries will approve the B23 fitted with a turbine engine, limiting its sales appeal. However, Bristell has made a very neat job of the installation, fitting under a sleek cowling with two huge turbine exhausts routed underneath the aircraft. Inside, the cockpit is simplicity itself with two large buttons, green for engine start, red for engine stop.



Bristell B23 fitted with Rotax 915iS engine

The B23 fitted with the 915iS Turbo engine is far more of a commercial proposition, continued Martin. That was an instant hit when announced and forms the bulk of new aircraft orders and sales, along with the long-standing NG5 two-seater.

“For the first two weeks after Covid locked down everything, there was total quiet, no calls, no emails,” said Martin. “But after that the orders for the 915 and NG5 came flooding in.”

The result was 100 aircraft delivered in 2021 and an expected 120 aircraft for 2022, which fills the Czech company’s current production capacity.



Wonky knees and stiff back? Bristell's B8 high-wing aircraft is being developed with the aim of being easier for older pilots to get in and out of than low-wing aircraft

That means production of the B8 high-wing two-seater is less urgent than it once was, when Bristell thought demand for the NG5 might decline. They have four B8s on jigs at the moment, making a total of five aircraft including the demonstrator, but Bristell is taking its time to develop the aircraft further. Plans include a deeper cockpit with a bigger door, to make it easier for older pilots to get in and out. For the same reason, the B8 has twin yokes instead of between-the-legs control sticks.

“The B8 is intended as an aircraft for pilots aged 70 or older to carry on flying, when they might be finding it difficult to get in and out of a low-wing aircraft,” said Martin.



Swiss company H55 is ramping up to produce its electric propulsion unit and aiming for EASA certification fitted to the Bristell B23 EnerGic

The B23 EnerGic model is a venture with Swiss electric aircraft pioneers H55, borne out of the Solar Impulse round-the-world flight. H55 is pursuing EASA type certification of the aircraft, which will eventually sell for around €300,000, possibly by the end of 2023. This is no small venture with more than 50 people now working for H55 at its plant on Sion Airport, Switzerland.

The standard mission for the B23 EnerGic is 6 circuits for a flying school, equivalent to a standard 1-hour flying lesson, allowing for a 30-minute reserve. H55 cites the cost of electricity for a one-hour flight as \$7.

Bristell Aircraft

TurboTech: a turbine for light aircraft

29 April 2022



TurboTech's turboprop fitted to the JMB VL3

Can a turbine engine on a light aircraft ever make sense? Usually the high fuel burn of turbine engines, jet or turboprop, means high cruising altitudes are needed to make them work cost-effectively.

But here at AERO22 are two 600kg microlights fitted with a new turboshaft engine from French company TurboTech, the JMB VL3 and Bristell B23 Turbine, with cruise fuel consumption of just 19 litres per hour. And that's Jet A1 fuel which is available much cheaper than avgas or mogas.

Not only is TurboTech producing the 80kg TP-R90 turboshaft with an output of 130hp, but it's also developing a turbo-generator which burns hydrogen and produces electricity for an electric aircraft. Both are remarkable achievements for a company that's only been established five years.

Damien Fauvet, CEO of TurboTech, based at the Paris airfield of Toussus-Le-Noble, explained that the founders were all turbofan (jet) experts working for Safran, and they started the light aircraft idea as a ‘backyard’ weekend project.



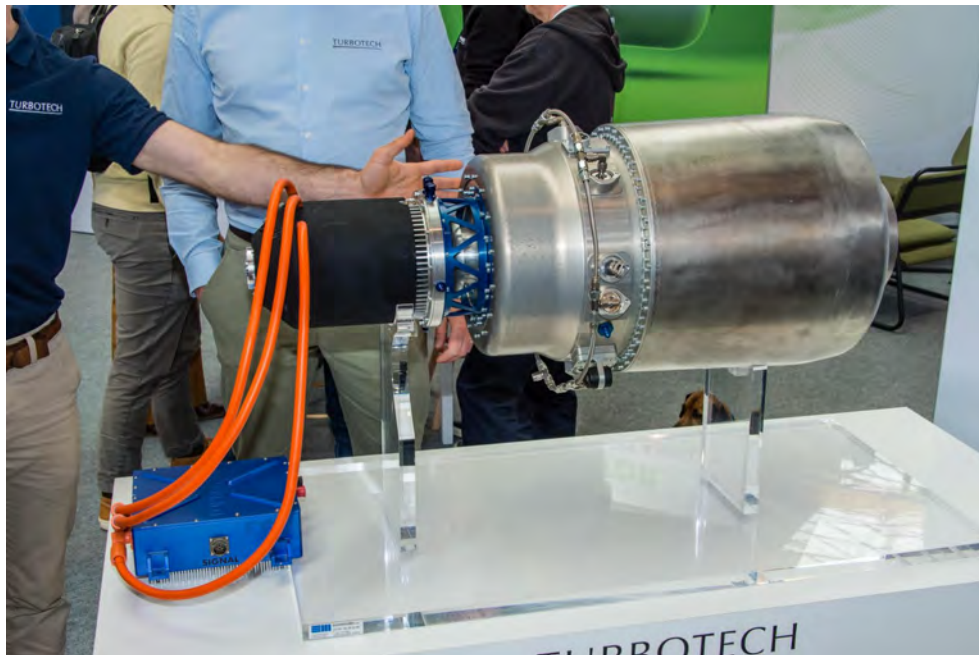
TurboTech's compact and fuel-efficient turboprop for light aircraft

What's special about the TurboTech turboshaft and helps it achieve the low fuel burn is that it is a 'regenerative turbine'. It's equipped with a heat exchanger that recovers the heat normally wasted in exhaust gases and reinjects it into the combustion chamber, leading to a dramatic fuel burn reduction.

“The idea of using a heat exchanger in turbines is not new,” said Damien, “but the real challenge was to apply it to light aviation. Turbotech has managed to develop a microtube heat exchanger.”

The advantages of a turboprop are many: light and compact, reliable and vibration free, low emissions – and now reasonable fuel burn.

TurboTech Turbogenerator



For use as a battery recharge system – a range extender – for hybrid aircraft, TurboTech's turbogenerator. Photos: Ed Hicks

TurboTech's other project is its turbogenerator, available with two power outputs, 55kW and 90kW. The TG-R55 and TG-R90 are intended for emerging hybrid-electric aircraft to recharge batteries during flight and to fit seamlessly into electrical propulsion systems.

TurboTech



Light Aircraft Association

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MY FIRST SOLO

Kellee Edwards, TV personality and travel broadcaster

Yayeri van Baarsen | 3 May 2022



How did you get into aviation?

Waiting at the gate at Burbank Airport, I saw a small aircraft doing touch-and-gos between these big airliners landing. Wondering, I googled 'one-man small aircraft' and GA came up. That's when I realised you don't have to be in the military to learn to fly. Becoming a pilot fit perfectly with my career... having the ability to fly to destinations myself sets me apart from other television hosts and travel journalists.

How did your flight training go?

It was different from anything I expected. I felt sick during my discovery flight. Just getting into the aircraft was a challenge. I'm 5ft 4in and couldn't see over the instrument panel or reach the rudder pedals very well. I had to take a pillow to sit on during my lessons – I've even used phone books. Also, I thought flying would be a case of just turning on the propeller and go, but it was so much more! I had to become a weatherperson, mathematician, and doctor on board. Mentally, at first it was overwhelming, but then I came to love the challenge.

How were you received at the airport?

Even now, when walking onto an airfield I can be greeted two ways within minutes. One is confusion, despite looking like a badass pilot with my aviators, headset and flight bag, people do a double-take and ask me if I'm lost or need help with something. The second, however, is excitement. I'm a young black female, which you don't see often in the aviation community, and most people are really welcoming.

Did you expect your first solo?

No, when my instructor told me to let him out, I asked what he meant. He repeated his words and my reply was: "Why?" He had to explain very slowly before it sunk in. Calling the tower, I had to wait what felt like 10 minutes before take-off. My legs were trembling from holding the brakes so long. When I finally got clearance, it was a bumpy ride. The Santa Ana winds were 20kt that day – later I was told I shouldn't have soloed as it was too windy! After take-off, a tear came down my smiling face – I never thought in a million years I'd one day be flying an aircraft.



Kellee got her seaplane rating in 2019

How was floatplane flying in Alaska?

Flying in Alaska is one of the most incredible experiences a pilot can have. I obtained my seaplane rating in 2019 and recently flew a 1967 Beaver in Sitka. The Alaskan terrain is on a truly different level, its beauty is unparalleled. We flew over glaciers, lakes, between beautiful gorges, and saw bears along the riverside. Unless you go backcountry flying, I feel like you can't truly appreciate where aviation can take us.

What's been your favourite place to fly?

Broome (Australia), where I landed a Cessna 172 on a tiny dirt strip in an Aboriginal community in 2019. It was my first time landing on dirt. In Southern California, we're surrounded by perfectly paved runways that feel like butter, so seeing red clay spit up as you're coming in was a little jarring! A close second was flying from Dutch Harbor to Nikolski (Alaska) for *Mysterious Islands* in 2018. The conditions were so terrible, we couldn't fly for three days, which delayed the shoot. It's very important for pilots to respect Mother Nature and stay within your personal limits.

“I’m a diverse face in the aviation industry, my platform shows that flying

is possible for people who look like me or have the same gender”

What’s still on your wish list?

I’d love to do some recovery flying. Many aeroplanes that have gone down in the Amazon have never been recovered because of the dense flora and fauna. These unsolved cases bother me – I’d love to get some answers for the families of these pilots.

What does flying mean to you?

Aviation is really empowering. The fact that the aircraft is in the sky because of my skill set

makes me very proud. Also, as I’m a diverse face in the aviation industry, my platform shows people who look like me or have the same gender that flying is possible for them as well. Becoming a pilot hasn’t been the easiest or most affordable path, but it’s been priceless!



KELLEE EDWARDS

Travel personality and host of TV series *Mysterious Islands* as well as the *Let’s Go Together* podcast for *Travel + Leisure* magazine, Kellee Edwards has created an unconventional career by merging journalism with aviation.

WHEN

13 November 2012

WHERE

Van Nuys Airport (California, USA)

AIRCRAFT

Cessna 172

HOURS AT SOLO

72

HOURS NOW

Approx 72

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SPECIAL FEATURE

Ten tips for spring weather planning

Ten top weather planning tips for pilots enjoying the return of spring...

Words Dr Simon Keeling | 1 May 2022

Well what a relief! Spring is well and truly here. But after the floods and warmth of the past winter, getting your flying weather-head back into gear for the promise that the approaching seasons offer can seem a little daunting. So, here's a guide on how to make the most of the flying that's ahead, and how you can avoid being caught out by the weather.

1. Apps with attitude!

Think about dumping the apps. Well, not all of them, I'm being a little over zealous. However, I'm concerned by the number of pilots who are relying totally

on such apps for all of their weather information.

While having always-on, instant access to weather information is no bad thing, it can lead a pilot into a false sense of security. Remember that the best weather forecaster is yourself. You're the person who has been flying in many weather conditions, you know how it 'feels' to be flying inside the weather machine. Frequently, all that an app is doing is regurgitating model data that you've already seen.

Observational and TAF data are a different matter. They are produced by humans and are a recognised guide for pilots. They are regularly reviewed and should provide up-to-date information – just ensure that the source of the data is recognised and is stated on the app.

Of course, some weather data is better than none at all, so my call to 'dump the app' shouldn't be interpreted literally, just go easy with them and build your own weather knowledge. Look out of the window and see what the weather is actually doing. If the weather doesn't feel right, it probably isn't!

2. Sea-breeze season

After the cooler temperatures of winter (and there were some cooler days!) it's all too easy to forget how quickly warmth can arrive. By the end of April, inland temperatures can easily get into 20°-plus, in sharp contrast to cooler conditions around our coasts. Sea breezes can develop and these can generate some sharp showers as well as gusty winds, often catching out unwary pilots. Visibility can be reduced and particularly nasty flying conditions ensue.

There's even more reason to be on the watch for the sea breeze this year. That's because sea temperatures around the UK and Irish coasts, as well as much of Europe, are above average for the time of year, and have been all winter. Air temperatures inland will therefore need to get quite high in order for sea breezes to form, but when they do they could be strong.

Be on the lookout for the sea breeze anytime from now (April) through to late September. However, the peak of sea breezes tends to be during May and June. To be honest, my experience is that strong sea breezes can occur anytime through the spring and summer months, often well into autumn, so best to be on guard throughout.

So what are the sea-breeze warning signs? Most obvious is a fine day with an increasing contrast between temperatures overland and at sea. Typically, a contrast of 4° or 5°C is required for the sea breezes to develop. However, other factors come into play too. The most important of these is the surface wind. An offshore component (flowing from the land to the sea) is the perfect ingredient

for the sea breeze to form. However, the stronger the wind speed, the greater the contrasting temperatures.

Don't forget that frequently the strongest sea-breeze days are those which start sunny and warm, often with calm winds, with the sea breeze increasing in the afternoon.

If you're flying inland, you may think that sea breezes don't apply to you, but they can penetrate any location within the British Isles, often bringing late afternoon / evening showers, storms and strong winds to the most unlikely of locations.



Don't forget, if the weather doesn't feel right, then it probably isn't. Take a look out the window before you do anything...

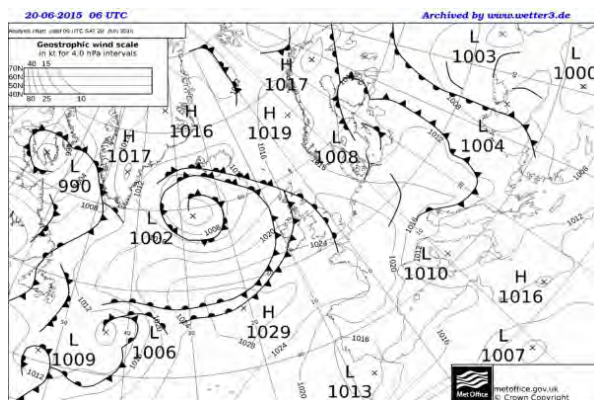
3. Don't be put off by a warm front

Be careful with this one! A warm front moving in from the Atlantic can bring low cloud and drizzle to western coasts and hills, making for non-VFR conditions.

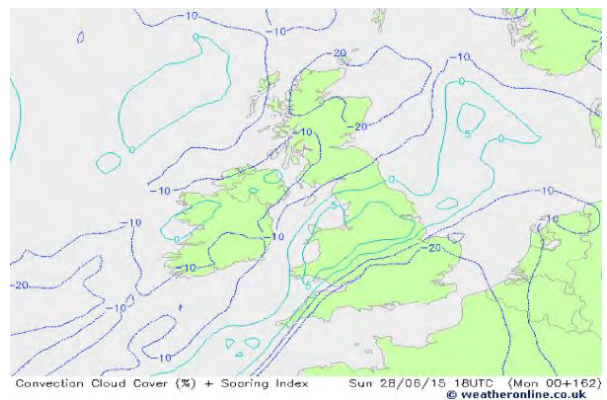
However, the same front has often lost its mojo by the time the air has crossed the higher ground over the west of the UK. Eastern areas frequently see the low cloud dissolve, revealing good visibility and long spells of sunshine. Winds may be rather gusty in these same areas though, with wave clouds forming (just ask a glider pilot about these elevators in the sky).

Key to spotting when a front will not fit to the normal conventions of a warm front is surface pressure. Check the QNH. Anything over 1,020mb tends to indicate that cloud associated with a warm front moving in from the west is more than likely to break. A good example of this from last year is shown.

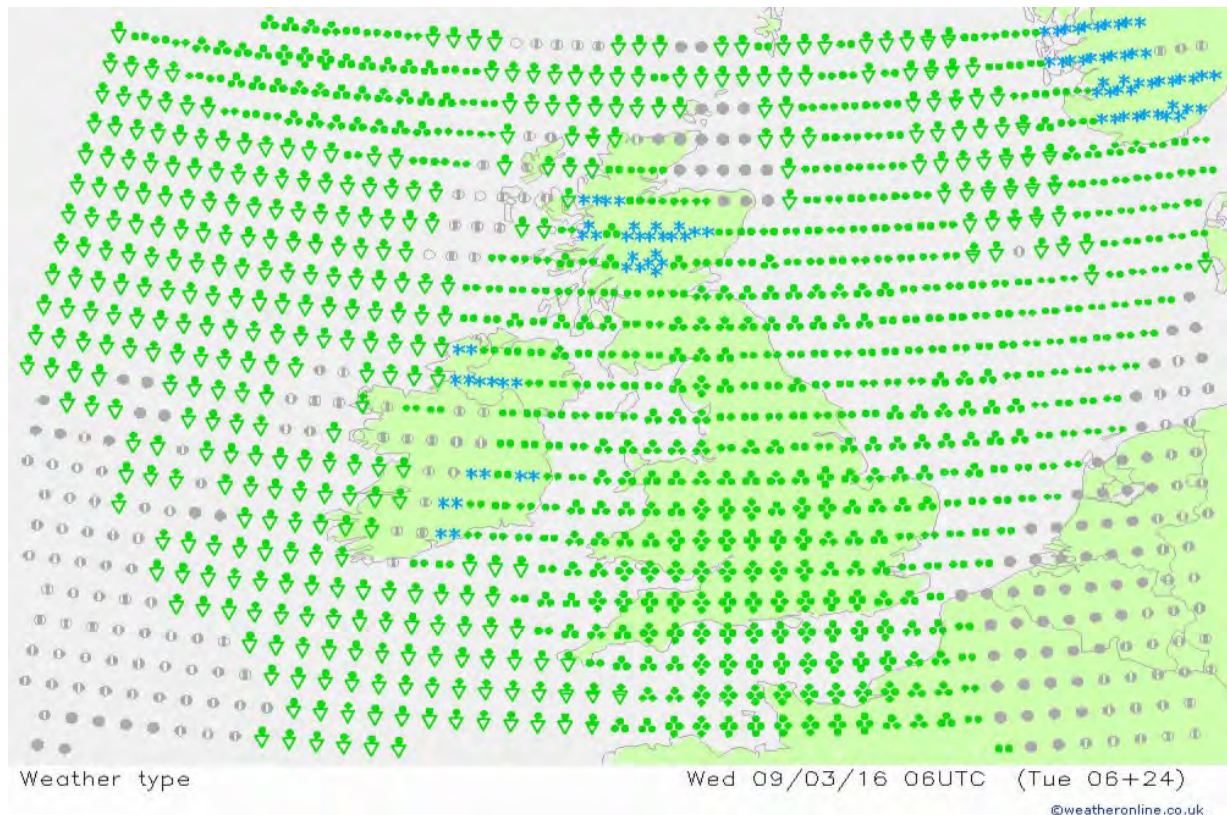
AIRMETs tend to be pretty good at picking up these developing breaks, but perhaps not until the morning of the event. Frequently, such warm front features can be spotted several days in advance by looking at the surface frontal charts (that's why they are available freely at www.weatherweb.net). You would be forgiven for thinking on seeing such a front that the weather would be generally non-VFR, but there's a fair chance of conditions being more VFR than you would first imagine.



Warm fronts with higher pressure can sometimes bring no more than low cloud and drizzle to western coasts and hills. Often the weather isn't as bad as the charts might lead you to believe



The higher the soaring index, the more unstable the air and the higher the risk of showers



Heavy rain shows as four green dots in this forecast model weather chart

4. Showers and thunderstorms...

This is a tricky one, for forecasters and pilots alike. There are days when showers are a certainty (RASH days in the TAFs), others when it's knife-edge whether they will form or not (PROB30). It's on these days when several factors must come together to trigger the showers.

There are some rules pilots can use to determine how likely showers are. First, how unstable is the air? That's the contrast in temperature between the upper air and surface. The greater the contrast, the higher the shower risk.

Take a look at the Soaring Index at www.weatheronline.co.uk > Expertcharts > UK > Soaring Index. This is a rough-and-ready-reckoner, based on model data, and it gives an indication as to how likely showers are. An index of 20 to 25 suggests scattered showers and a low thunderstorm risk, 25 to 30 indicates a frequent shower risk and a moderate thunderstorm probability, and 30 to 35 indicates heavy showers are likely, as are thunderstorms.

As with all model-based data, this is fallible and deals only with the absolute calculations of the model. It should be used as just one tool for you to assess the likelihood of showers.



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Your own eyeball is another tool. Watch the clouds carefully. Small cumulus developing in a clear blue sky in the morning is the first warning sign of impending showers. If the cumulus continue to build into the afternoon, extending vertically, the risk of showers is further increased.

If high, wispy cirrus clouds are overhead, and detached from the cumulus clouds, this can indicate that the atmosphere is starting to stabilise (because of some warmer air aloft) and reduces the risk of showers and thunderstorms.

5. Showers and thunderstorms... again

Let's make life easier for ourselves. The above is all very nice and the methods do work, but there's another way to determine showers, which is my preferred method of forecasting.

It can seem a little confusing at first, but bear with me. You will know I keep banging on about skew-T diagrams. Well, they really are the best way to determine the chances of showers.

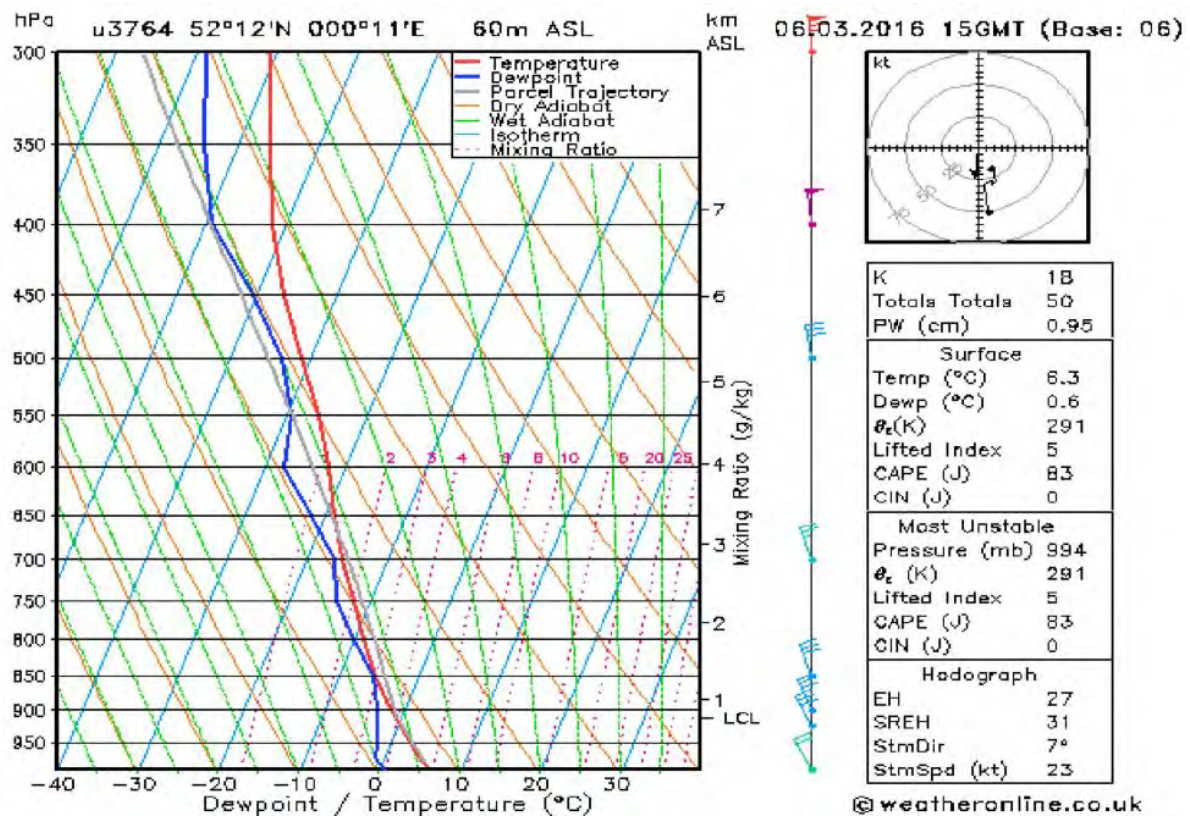
Skew-T is basically temperature (marked on the bottom of the graph in Celsius), against height (marked in millibars on the left of the graph). Ignore the straight and smoothly curved fainter lines. It's the bold red and blue lines that are of interest to us.

In the skew-T diagram shown below you can see three coloured lines. The first is the bold red line (this is temperature). The second is blue (this is dewpoint). There is a third line, which is fainter, to the right of the temperature line. It's marked in grey and this one is a forecast parcel line.

This grey line marks the path that a parcel of air would take if it was to rise. You don't need to confuse yourself with the details. What you need to know is that if that grey line is to the right of the red line showers could occur. The greater the amount that the grey line is to the right, and the greater the depth of height that it rises, the higher the risk of showers.

In the example shown, the grey line is to the right of the red line at about 900mb to 675mb, which gives a cloud depth of about 7,000ft, enough for light showers to form.

Skew-T diagrams do require some perseverance to understand fully, but once you have mastered them they open up a whole new world of weather understanding for the pilot.



Skew-t diagrams reveal the mysteries of the atmosphere. This forecast skew-t shows an unstable atmosphere and a risk of showers

6. Read the skies

All you need to know about the weather for flying in the next few hours is painted on the canvas above your head.

Remember that below about 6,000ft 'fluffy' clouds indicate an unstable atmosphere and one in which showers could form – 'flat' clouds tell us that the atmosphere is more stable and that changes are unlikely to be rapid. Note that it's important not to associate the term 'stable' with fair weather.

If those fluffy, cumulus clouds grow through the morning, and continue to do so into the afternoon, then that's a good indicator that showers could occur. If they change very little over a few hours, then showers are less likely.

Flat, stratiform clouds (layers) tell us that what is happening now is likely to continue for at least the next couple of hours. If it's raining, then that's likely to continue. If the clouds are just flat stratocumulus (like those in the photograph) then any rain that does occur will only be light, and changes in wind and weather probably won't occur.

Get yourself a good guide to identifying clouds and the weather they bring (cue a plug for my [Pocket Weather Forecaster book](#)) You'll be amazed how good your DIY forecasting can become just by looking at the clouds.

7. Make the most of forecasts

We are all creatures of habit. There are forecasts we watch every day on the TV, as well as websites we might visit more than once each day to try to plan our flying. Sometimes this regularity can lead to us missing the best forecasts.

Take the forecasts available via the Met Office. Hiding deep within this free service are forecasts called AIRMETs and the UK Update and Outlook. Both of these are in semi-plain language and give the forecaster the opportunity to describe expected weather conditions and uncertainties. They tell you about the stability of the atmosphere, visibility, wind and the risk of sea breezes.

If you are not using these forecasts yet, now is the time to begin. They are perfect for planning spring and summer flying.



Cumulus clouds indicate unstable air. If they are small, watch carefully, because they could be the precursor to showers and thunderstorms

8. Watch airfield instruments

Don't ignore the weather information given out to those landing and taking off at your airfield. Half an ear to variations in wind directions and QNH can lead to early warnings of changes in conditions.

If the forecast is for showers and you hear ATC giving a wind direction which has, say, backed in the last few minutes (that's a wind gone backwards on the

clock face), and perhaps even increased, it can be a warning of an approaching heavy shower.

The faster that pressure rises or falls, the increase in the risk of stronger winds. Anything greater than 2mb an hour could indicate stronger winds ahead. A rising QNH tends towards better weather, a falling QNH indicates a deterioration.

9 . What does the model forecast say?

OK, so this is a bit of a contradiction. I'm always warning pilots at Weather School not to fall into the trap of becoming a 'model monkey'. But some of the data that is available can be effectively used to plan a flight.

Take the forecast weather chart available at WeatherOnline: go to www.weatheronline.co.uk > Expert Maps > United Kingdom > Model weather – this is based on the GFS model and makes a prediction based on model forecasts out to seven days ahead.

Green dots indicate rain, triangles are showers. The more dots there are, the heavier the rain is likely to be.

It's a great way to get an overview of conditions both in the UK and abroad and can certainly be a great help when planning a summer flight.



'Flat' clouds indicate that the atmosphere is more stable and that changes are unlikely to be rapid

10. Be 'weather website' aware!

We've all seen it. That amazing looking website: super cool, beautiful colours and smooth animation. But danger lurks in these sites!

Just because a website looks amazing, doesn't mean that the forecasts are more accurate. Often, the data comes from exactly the same source (usually the GFS model) and has been manipulated to look amazing.

Rules for which websites to follow are simple. Is it a legitimate company? Check the contact details, is an address and contact telephone number listed? If so they are more likely to be legitimate. When are charts updated? Check for a time of issue and statement of update frequency. Who is behind the site? Are they professional weather forecasters? It's easy to tell because professional forecasters in the UK are now accredited as 'Registered Meteorologists'.

Finally, select your favourite three weather websites and stick to them, remember to watch our twice weekly flying forecasts on the **FLYER** weather channel (only available if you are a FLYER Club member). Don't be tempted to cast a wider net in order to get the forecast you want to see!



BE WEATHER READY!

Whatever your plans for flying this spring and summer there's never been more weather information available to help you plan your flights.

Have confidence in your own ability and use official forecasts to supplement your own observations and forecasts. And if you need to enhance your flying weather knowledge, why not come along to one of my Aviation Weather Schools?

More info at www.weatherschool.co.uk. Above all, enjoy the weather, whatever it throws at you, and keep the sun shining!



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SPECIAL FEATURE

Tracing action: how D&D kicks into gear

What happens when an aircraft is overdue or disappears off the radar?
Distress & Diversion (D&D) launches a tracing action

Words Jason Bowditch, Flt Lt & Air Traffic Controller, 78 Sqn | 2 May 2022

Ever wondered what happens in the background if you had to make a crash landing that nobody knew about? Well today is your lucky day, as this article explores what D&D does behind the scenes regarding tracing action.

The exact same process is conducted if a pilot diverts to an aerodrome that wasn't the intended flight planned destination or leaves a frequency without 'signing off'. Safety status of an aircraft can never be assumed. D&D will do its due diligence.

Tracing action is the action D&D takes to track and trace the location of an aircraft where the safety status of that aircraft is unknown. Each time D&D is

requested to conduct tracing action, there is a likelihood that the aircraft in question may have had an emergency and may have crashed. It is therefore our responsibility to carry out the tracing action efficiently and with urgency.

When is tracing action triggered?

The possibilities of how and when tracing action is activated are wide and varied. I'll give you a flavour of a few of the common scenarios that would activate tracing action:

- An aircraft is overdue at the planned destination aerodrome.
- An aircraft doesn't sign off from the ATC frequency they were working.
- Aircraft didn't arrive for a pre-booked Practice Diversion.
- A phone call from the public referencing a 'possible' downed aircraft.
- Report of an ELT when Mission Control Centre (MCC) has a known callsign.

Now you are aware of the more common triggers for tracing action, I'd usually go through a list of what tools and strategies are available to D&D to help locate the aircraft. However, here is a realistic example which encompasses most of what we have available to resolve these events.

Overdue aircraft?

Saturday afternoon and Caernarfon Airport has noticed that it is still expecting another inbound before it closes the airfield, but the flight planned departure airfield is incorrect. Caernarfon Airport then called D&D to inform us that G-FIND is overdue at its airfield, but have no further details.

Being a weekend, D&D will have one controller and one support controller, we'd therefore be splitting tasks to ensure we work as efficiently and effectively as possible. The support controller goes onto G-INFO to get the details of the aircraft – where it's registered, type and the description of the aircraft using ABPic. The support controller can see from the pictures which bases the aircraft has most recently visited to give us some guidance and awareness.

While the Support Controller is collecting that information. The D&D Controller called the CACC to see if it had any notification of activated VFR flight plans for G-FIND. It came back with a positive result that G-FIND got airborne from Bournemouth approximately four hours earlier. This pairs up with one of the pictures on G-INFO.

The Controller then called Bournemouth Airport to validate the information and get an actual airborne time for accuracy to make sure the intention of the pilot was still to arrive at Caernarfon. The Controller then calls to book a Radar Replay to track the aircraft out of Bournemouth at the time of departure. The Radar Replay usually takes 15 minutes to arrive into D&D.

The Support Controller is looking at Flight Radar 24 for any flight history of G-FIND earlier that day. This data relies on Mode S, so not all aircraft can be seen on this application. However, in this case we have a track and we can see the route was clockwise around Cardiff CTA, but disappears to the north of Cardiff.

D&D cannot use Flight Radar 24 as a single source of information and must be validated by other means. It's a useful tool, however, it's for awareness only.

D&D then called the Joint Rescue Coordination Centre (JRCC) to brief it of the situation and inform it of the actions we have conducted so far. This is not to scramble any SAR assets at this stage, but for situational awareness so it is not caught cold if escalation is required later.

While waiting for the Radar Replay, D&D call all possible units or agencies that may have worked the aircraft. In this example, Exeter, Cardiff and London FISO – all of which hadn't.

We receive Radar Replay and tracked the aircraft. The aircraft disappeared from radar at around 3,000ft asml, descending for Llanbedr Airfield. Likely cause of disappearance was due to the high ground in North Wales, but we cannot make any assumptions.

We call Llanbedr who don't answer the phone. We then try the registered pilots' number who also doesn't answer. We called Caernarfon to give it an update and to see if it had any useful numbers to contact Llanbedr Airfield. No joy either.

We call the JRCC and give it an update and requested if it were possible to do a fly-over using its asset based at Caernarfon, starting from the last known location on Radar, into Llanbedr Airfield.

Fortunately, as the SAR crew were getting ready to depart, FIR called D&D to inform us that they just had G-FIND on their frequency and they were safely in the air. They departed from Llanbedr transiting back down south. D&D then closed the loops with JRCC and Caernarfon and any other interested parties.

Conclusion

This example is fictitious, but based on similar previous experience, it hopefully gives you a flavour of what D&D would be doing in the background to find out the safety status of an aircraft. All situations are different and will require different responses. D&D will be using the most relevant and pertinent tools to find the safety status of the aircraft in question.

This example also highlights the requirement for pilots to let someone know of any change of plan. Even if that means transmitting on 121.5 to let D&D know

your updated plan, we can pass the message onto relevant agencies on your behalf.

The same requirement is extant if you leave a frequency without 'signing off'. It's hugely appreciated if you let either D&D know or contact the controlling agency of that frequency. It negates the need to conduct lengthy unnecessary tracing action on safe aircraft which in turn, increases D&D's capacity for actual emergencies.

Thank you very much. See you soon!

Other articles in this series

Distress & Diversion: Who you gonna call?

You make an SOS call... what happens next?

Practice Pans make perfect



TECHNICAL

Post winter TLC for aeroplanes

Engineer Jerry Parr gives you some pointers for the essential tender loving care an aircraft might need after winter...

Jerry Parr | 3 May 2022

Most aircraft owners and operators always have the intention to carry on flying throughout the year, regardless of the season. Few consciously decide to lay up their aircraft for the winter months and take all possible precautions before it is too late. Then the weather arrives and often, even if the weather is game, the runway may not.

In any case, whatever the season, if an aircraft is left alone for any length of time it is good to apply a little extra tender loving care (TLC), and carry out some extra fettling... which is especially true as we come out of the gloom of winter.

As far as pre-flying-season fettling is concerned, it will depend on your aircraft's certification status and your experience as to how much you can do, are allowed to do, and where you need an engineer or inspector's assistance and signature. No upkeep should be carried out without the proper tools, maintenance manuals and knowledge. If the aircraft has been sitting still for any length of time, it will require a really thorough look over.

An ideal place to start is the pre-flight inspection. Dig out the Flight Manual and follow it to the letter. It may be that over time, you have become so familiar with the pre-flight routine that the odd point is being overlooked. Using the published inspection regime will be good for the aircraft and perhaps stir up the grey matter. Many aircraft maintenance manuals have a few paragraphs on returning the aircraft to life after long- or short-term storage.

Fuel systems

Possibly the first thing to check before anything else, and certainly before the aircraft is moved, is the fuel system for contamination. Any substantial movement of the aircraft may disperse water and other contaminants away from the fuel drain points.

Ideally, the fuel tanks should always be left full to avoid condensation forming but this often isn't possible due to weight-and-balance considerations. Switching the fuel off on some installations prevents any chance of fuel cross-feeding to a lower tank. Fuel cap seals should be maintained in good condition and if at all possible be kept covered. Water ingress can occur through fuel cap locking mechanisms, not just via poor seals.

Remember that the fuel tank drains are normally located at the lowest point of the fuel tank or fuel system when the aircraft is in a level attitude (longitudinally and laterally). It isn't always just the obvious drain points either. For instance, some Cessnas have extra fuel system drain points in the fuselage that are not fitted to similar models of an earlier vintage. The later 'restart' Cessna singles have five drain valves in each wing-tank to ensure water collects near at least one of the drains, regardless of the aircraft attitude.

Aircraft fitted with bag-tanks on the other hand may have water caught in folds in the tank, so keep checking the drains even after the aircraft has been moved.

One of the attributes of avgas is its ability to remain 'within spec' for a fair length of time. With the advent of mogas used in many aircraft, care should be taken to ensure that the fuel is still usable and has not 'expired'. With the use of fuels containing a percentage ethanol which is allowed in some aircraft, extra caution should be taken due to the ability of ethanol to absorb water under certain conditions and for that water to then reform later and sit in the tank in liquid form, when there is a change in ambient conditions.



Some aircraft covers are better than others...

Airframe

Apart from the normal check of the airframe, particular attention must be paid to the lower surfaces of the fuselage, wings and empennage to check that all the drain holes are clear – it is all too easy to concentrate on the parts that are easier to see. Sod's Law dictates that, by and large, the upper surfaces of aircraft are not watertight and water will flow to the lower points of the airframe, carrying with them dirt and crud, which promptly block the small drain holes.

Obviously, high-wing aircraft should not have the upper surfaces forgotten at inspection time, just because they tend to be more difficult to access. It may well require a stepladder or trestle – having a look from the wing strut-mounted steps on a Cessna, for instance, is not sufficient.

Pitot-static systems are particularly prone to blockage either by water, ice or insects. They find the ports extremely attractive places to occupy, something that many airliners suffered from after their Covid-19 lockdown-induced periods of inactivity. Not only should all the ports be securely blanked off whenever the aircraft isn't flying, but if system drains are fitted, ensure these are checked prior to flight. Incidentally, warning flags on blanks are good for raising attention, but if left to their own devices they can really hammer the aircraft's exterior finish after a time. If more than normal blanks have been fitted (such as static port blanks) make sure they have all been removed.

Flying controls should be checked carefully for water accumulation. The Piper PA-28 (among many other types) has an all-moving stabiliser with drain holes in the lower surface to prevent the build-up of water. In the winter, water freezing here could cause a serious control surface imbalance. Other places prone to ice forming are inside propeller spinners or tail fairings, where there are fair-sized holes to allow the rain in, but only very small drain holes to let it out again, which are easily blocked by debris.

‘Birds are clever and will find their nest again even if the aircraft has been flying’

Airframe covers help keep the paintwork protected and the weather out, if the aircraft is outdoors. Modern covers are available in breathable materials, which help keep the airframe dry underneath. An added bonus of a fully covered aircraft, if flying in winter conditions, is that there is no ice to remove before you can go flying.

Engine inlets are commonly blanked off, but outlets rarely are. As spring approaches, a careful inspection should be carried out on anywhere that birds may decide to nest. A cursory glance on top of the engine is not enough. Inside the lower cowling, beneath the engine as well as inside, induction and oil cooler inlets need checking, as do inside tail fairings and up inside the undercarriage bays of aircraft with retractable wheels. Birds are clever and will find their nest again even if the aircraft has been flying, so keep checking.

Rodent attack is possibly the worst enemy of an aircraft, and it does not matter if the aircraft is parked indoors or outside, the little blighters can break in. Supposedly, mice can get through a hole no bigger than a biro!

Mice can get inside the airframe via the undercarriage legs or cover straps that are left hanging down. Some people have had success fixing tall metal boxes around undercarriage legs to stop their ascent as mice can easily climb up inside PA-28 spats and leg fairings – and from there it’s straight into the wings and then the fuselage. Once inside, they will make nests out of seat cushions, seat belts and carpets. If they decide to nibble on the wiring loom then there are potentially going to be some serious issues. Keep an eye out for droppings as well as loose materials. Lift up seat cushions and have a look inside the rear fuselage as well, if possible. Have a chat with your engineer if in doubt as to what systems and spaces exist in your aircraft, which might be susceptible to rodent attack or nest-building.

Control locks should always be fitted when the aircraft is left outdoors and ideally when parked in a hangar, too. Some controls are linked to other systems

such as the rudder to nosewheel steering, and ailerons to the rudder circuit. If the aircraft is to be moved with locks in place, then it's a good idea to put a warning notice inside the windscreen alerting people to the fact.

Aircraft covers are good devices to help prevent flying control damage due to excessive winds. A careful inspection is required of the control system as far as possible. Operating links may have rod end-bearings attached with a threaded bar that is a potential weak point in the system if the control is moved in an incorrect or excessive manner. Rudders can take a real hammering in strong winds, although some are connected to the nose or tailwheel steering mechanism providing a form of self-locking but if not they, (as with any flying control), should be locked at a strong point – ideally at the point at which the control is normally moved, be it by cable or actuating rod.

Regardless of where an aircraft is kept, the systems must be kept lubricated. The only guide for what needs lubricating and with what lubricant is the aircraft manufacturers' manuals, although it isn't always as obvious as it might be. For instance, Piper PA-28 aileron piano hinges are sheathed in a Teflon sleeve and ordinary oils may well harm this sleeve. One often sees grease liberally applied to rod end-bearings and hinges. This can actually attract and retain dirt, and as the excess grease hardens and cracks allows water to pool exactly where you do not want it to, and therefore it can actually promote wear and corrosion.



C'mon, give it some love...

Undercarriage

Undercarriages need a lot of looking after all through the year – and that isn't just the tyre pressures. Ideally, if stored outside, aircraft should be parked on paving slabs rather than grass as this helps to prevent corrosion of the wheel, wheel bearings and brake components, which can be accelerated by sitting in damp, ever-growing grass for extended periods. If the aircraft is fitted with wheel spats, make sure these are removed to allow proper inspection of the tyre – and to ensure that the spat does not become full of mud and other stuff during winter operations on grass.

If the wheels have been sitting around in the wet, it may be prudent to have the wheels off and the wheel-bearings inspected and repacked. A bit of preventative maintenance now will pay dividends in later months. Undercarriages work hard and should be lubricated regularly, especially post-winter – this is especially true for retractable gear. Tailwheels need looking after too, including the pivot mechanism. Over recent years, the castering nosewheel has become more common as it's a simple mechanism for aircraft designers to incorporate. They are broadly similar to tailwheels in that the design does not necessarily lend itself to easy 'relubing', but do not assume the pivot shaft doesn't need looking after. Remember that this type of undercarriage isn't just the domain of the LSA and homebuilt end of the market – Diamond DA40s and Cirrus have castering nosewheels, too.

'Aircraft should be parked on paving slabs rather than grass'

If the fescalised portion (the shiny bit) of an undercarriage oleo loses its smooth finish, then as the oleo does its thing, the seals may be damaged and require replacing. Make sure the fescalised portion is kept clean and polished as the seals can suffer from anything from rock-hard impacted flies to corrosion pits. The oleos may appear to be at the correct extension at a first glance, but this may be due to stiction in the seals. Care should be exercised when checking oleo extension and it might not be apparent until taxiing the aircraft that there is a problem. Maintenance manuals will quote a pressure the oleo should be charged to or, more usefully for a pre-flight inspection, a measurement of exposed fescalised portion. This is normally quoted at maximum static load (empty weight plus full fuel), so some allowance would normally be required for the given fuel state. Remember oleos contain air and hydraulic fluid so a leak of either medium requires investigation as the shock absorption characteristics will be altered.

Tyres will develop flat spots when not turned for a while. Normally this isn't an issue and once back in use they will resume their normal shape. Aircraft tyres

have a relatively small total volume compared with car tyres and a small leakage can make a big difference on the pressure. This in turn adversely affects the ground handling and in particular the effective drag – not helpful on the take-off run.

One of the attackers of tyres is UV light, and if the wheels aren't fitted with spats then it might be wise to have some wheel covers made. Some inner tubes definitely hold air pressure better than others – going cheap is not always the best way forward, and always fit proper, sealing dust caps on the valves.

Brake discs are prone to corrosion, but light surface corrosion should not be an issue once the aircraft is back in use – although deep pits, scores or corrosion at the disc/hub joint are a different matter. The brake caliper torque pins are to be kept lubricated and obviously there should be no signs of brake fluid leaks. Brake reservoirs should be checked for a correct fluid level but make sure they are topped up with the correct type of fluid. GA aircraft braking systems are normally filled with a red, mineral-based fluid that is not harmful to paint and other surfaces – unlike automotive brake fluid. Any signs of sticky fluid on the caliper or on the floor below should be investigated (another good reason for not parking directly on grass, where a leak can be difficult to spot).



Undercarriage legs must be kept clean and well-lubricated to function normally

Electrics

Light aircraft tend to have pretty basic electrical systems compared to those found in the modern car and they are not built to the same rugged, weatherproof, standard either. Modern and upgraded aircraft may have 'state of the art' avionics installations, but remember this is GA 'state of the art'...

In normal use, our electrical systems can cope perfectly adequately but if left alone in a damp environment, problems can occur. Contact surfaces can corrode and water may pool, causing short circuits. Aircraft batteries take a real pounding in the cold and given that those found in certified aircraft tend not to be of the highest output capacity or latest technology, they need extra care. If in doubt as to the battery's status, it should be removed and charged accordingly.

All too often in winter, aircraft engines are started on ground power due to the battery being discharged. This means the battery is being charged at a much higher rate by the aircraft electrical charging system than that of a battery charger. Wet cell batteries (still the most common type in certified GA aircraft) will start to vent out some acid during this high-power charging which will, in theory, find its way overboard through the battery vent lines.

Unfortunately, often the acid sits in the battery box or worse still, the aircraft structure, causing massive corrosion problems. Even when working correctly, battery drain tubes are not always the answer as they barely clear the airframe and allow the fluid to corrode the outside of the aircraft skin, especially in the airflow in flight. Battery terminal grease is available to prevent corrosion forming at the battery terminals themselves and will help prevent the efficiency suffering as a result.

'Avionics are delicate flowers at the best of time'

When starting from cold, it is advisable to use all of the available battery power to turn the starter motor. No need for strobes, anti-collision and navigation lights blazing away needlessly, shouting 'clear prop!' still works. Avionics are delicate flowers at the best of times and as age progresses, some of the older gas discharge displays start to suffer from the cold and damp. Some people used to take their avionics boxes home with them for a winter's hibernation in the airing cupboard. That's all well and good but doesn't protect the radio rack contacts, plugs and connectors from corrosion in the damp atmosphere and to stay legal, many navigation boxes require a test with an avionics engineer's ground test equipment on reinstallation.

Once the engine has started and is running with the charging system doing its thing, only then is the time to warm the avionics and let their natural, internal

operating warmth remove any dampness. Similarly, the flight and gyro instruments do not like sitting unused in a damp and cold atmosphere but should dry out when in use. It is not uncommon to see the instrument glasses mist up when first put back into use after a lay-off and there isn't a great deal you can do about this except wait patiently for them to naturally dry out as the air temperature increases.

Dehumidifiers have become more common recently and will help keep the moisture levels down. Obviously, they need to be monitored and emptied as required. If you have the luxury of mains power near the aircraft, electric dehumidifiers (drained externally) do an excellent job of keeping the aircraft dry inside but also keep a small amount of airflow through the aircraft and the humidifier exit air is normally warmer than ambient.



Left alone in a damp environment, avionics can develop problems

Engine

There isn't a great deal you can do with the engine apart from give it a good look-over for the aforementioned birds' nests and corrosion. It is possible to fit desiccant bungs to inlets, exhausts and crankcase breathers (and even in place of spark plugs) to reduce the engine's internal moisture level. Importantly, the engine should not be rotated by hand unless you are going flying, as this can wipe off any residual oil coating on the various surfaces and leave them prone to corrosion.

Check the external surfaces of the cylinders and other components for corrosion – especially the steel cylinder barrels. Keeping the cowlings nice and clean will show up any oil leaks that have appeared and give an indication as to where from a leak has occurred.

‘Regardless of where an aircraft is kept, systems must be kept lubricated’

The engine should not be run without the intention of flying as it is rarely possible to get an engine up to normal operating temperature on the ground to boil off any internal moisture. All ground running tends to do is to promote the formation of condensation as the engine cools again after the run.

It may be wise to change the engine oil as this can absorb moisture. In the ideal world, everyone would change the oil for inhibiting oil (or at least clean oil) prior to a winter lay-off as this will remove any of the harmful combustion process by-products and contaminants from the oil.

When it comes to going flying, carefully turn the engine over by hand – and listen. The vast majority of traditional aircraft engine aircraft have magnetos fitted with impulse couplings (many installations only have one impulse magneto fitted) to provide a fat spark for starting. The impulse coupling only engages at low rpm and can be heard as a loud ‘click’ as you pull the engine through. Impulse couplings are prone to sticking over time and it’s always wise to pull the engine through when leaving an aircraft for any extended period to ‘fire off’ the impulse coupling. This means that the impulse springs are not left under tension and more likely to work as they should, next time round. It goes without saying to always handle propellers with care... a hi-vis won’t be enough to save you!

Propellers

Aluminium blades are often down to bare metal along their leading-edges due to the life they lead beating their way through air, dust and rain and also through the frequent nick removal at the hands of the engineers. This does leave them prone to corrosion, which must be removed and, ideally, the surface finish restored.

Variable-pitch propellers have bearings in the hub and as with any other type of bearings, react badly to water ingress. If possible, leave these propellers horizontal to avoid water pooling on the blade seals. On twin-engine aircraft with feathering propellers, the feathering system may use air pressure, which can drop off with time so it would be wise to check the dome and / or accumulator pressure before flight.

Propeller hubs and blade root ferrules are also prone to corrosion and may require the spinner to be removed for a thorough inspection to be carried out. Some blades are wood sheathed in a composite covering and during the winter months, it is not unknown for the wood core to absorb moisture and then split the composite at the root end of the blade trailing edges.

It was always said that wooden propellers should be left horizontal to avoid damp ingress along the length of the blades. Unfortunately, Evra apparently says that its propellers should be left vertically, so that's that theory blown out! Best way is to check what the manufacturer suggests.

Beware freezing conditions and the possibility of ice forming inside spinners – another good reason for leaving props with at least one blade pointing downwards.

Propeller care is a real necessity, regardless of the type, construction or number of blades. The best way, as with the rest of the aircraft, is to keep the propeller nice and snug in a cover and away from the weather.



As Jerry says, "If the aircraft has been sitting still for any length of time, it will require a really thorough look over"

In summary

It's a fact of life that none of us can fly as much as we want to – or indeed, intend to. When the weather intervenes, it makes a lot of sense to spend a bit of extra

time fettling your aircraft before committing to flight again.

If in doubt, employ the services of an aircraft engineer – perhaps now is a good time of year to get the aircraft's annual inspection carried out.



ACCIDENT ANALYSIS

With Cat Burton

COLUMN

Accident Analysis June 2022

Avoiding tragic accidents

Cat Burton | 29 April 2022

I am Cat Burton, your new safety editor. I'm a veteran of a 45-year career as a British Airways captain, and now senior flight instructor at Cardiff for a professional flight training school, so I shall be trying to bring my wide perspective to these pages. I'll look at incidents and analyse what went wrong, and what might have saved the day. I emphasise that these are my own analyses. They may agree, or disagree, with any official accident report, but I will try to draw lessons we can all learn from. Some may be brief and some much longer, depending on what suits the particular incident.

For my first incident, I thought I'd look at an aircraft accident which I came to know very well, as I lost a good friend. Although it's more than 10 years ago, it's the sort of scenario that can easily reoccur, especially since we're at the start of the flying season for many pilots.

The incident was the mid-air collision over Shoreham-by-Sea on 4 July 2011 between a Van's RV-6A and a Diamond DA40D. The two aircraft collided, in good weather. The Diamond was rejoining the circuit, on crosswind, while the Van's was on downwind. The Van's was rendered uncontrollable by the collision and the pilot lost his life. The Diamond was successfully landed without a propeller or gearbox, on the outfield at Shoreham Airport.

The Van's was being flown after an extended period of maintenance. Five such hours were called for and the pilot, having completed all the tests required, was burning remaining hours in the circuit. He was a friend of the owner with considerable experience of Van's aircraft, being the builder and owner of his own RV-7, and approved by the LAA for such test flying.

The Diamond was being operated by a school that specialised in training flight instructors, both initially and for revalidation and renewal and upgrade. The

student was a staff instructor upgrading his qualifications.

The instructor trainer was pilot in command and in the left seat. The student instructor was in the right seat. This is normal on such flights as the instructor trainer acts as student for training purposes. At the time of the collision, the pilot in the right seat was flying the aircraft and making the radio calls.

The Van's called for rejoin at 1519:10 and was given a crosswind join. The pilot requested to enter the circuit to complete the required hours.

The Diamond called for rejoin at 1522:20 and was also given a crosswind join.

*“The Diamond was still on crosswind
when there was a huge bang and the
aircraft rolled to the left”*

Shoreham ATC was operating both tower and approach on a single combined frequency.

At 1522:30, ATC told the Diamond to report north abeam Worthing pier and to look out for an RV-6 on the same join. The Diamond acknowledged and, immediately after, the Van's reported that it had already joined crosswind and was about to turn downwind. ATC told the Van's to call downwind, which the Van's did at 1523.

At 1524:30, the Van's reported final for a touch-and-go. At 1524:50 it was cleared for a touch-and-go. A Piper PA28 was then cleared to line up after the RV-6 on final.

At 1525:10, the Diamond reported abeam Worthing Pier and was told to report crosswind. ATC also advised the Diamond that there were 'two in the circuit'.

At 1526, the Piper was cleared for take-off with a left turnout. The radio was then occupied for 50 seconds by two aircraft asking for joining instructions and one receiving them.

At 1526:50, the Diamond reported crosswind. Based on the first circuit flown by the Van's, the ATCO's mental model had the Van's ahead of the Diamond and already on downwind when the Diamond reported crosswind.

The Diamond was still on crosswind when there was a huge bang and the aircraft rolled to the left. To confirm who was flying the aircraft, the student instructor said, "I have control," and recovered the aircraft to a glide attitude. He turned downwind and saw that he had no prop, plus damage to the left wing. He elected to land the aircraft on non active Runway 25 with no further damage. While the student flew the circuit, the instructor trainer saw the Van's descending in a wide spiral into a large open space near the airfield called Shoreham Rec.

"So what went wrong? And what could have avoided this collision"

The ATCO had continued to issue joining instructions and then had cleared a Cessna to touch and go before a garbled Mayday call was received at 1527:25. The controller asked for a repeat but an unidentified caller said, "He's gone in behind the airfield."

The radar tracks show that as the Diamond was crossing the runway upwind end, the Van's was turning downwind. They were at approximately the same altitudes, with the Van's being up to 25ft above on some returns. The radar also shows that the Van's would have been observed on a constant bearing throughout.

All three pilots were experienced and current. The Van's pilot was a retired airline pilot who had retired in 2003 and amassed 600 or so Van's hours after retirement. The commander of the Diamond had been instructing for more than 30 years. The trainee was a current instructor with 1,200 hours upgrading to instrument instructor. The ATCO had been qualified at Shoreham for more than 12 years and had been on duty for 58 minutes, supporting the operational ATCO before taking over the operational seat at 1521. She was providing a combined aerodrome and procedural approach service without radar.

So what went wrong? And what could have avoided this collision.

All four parties were experienced professionals, well rested and capable.

None of them were directly to blame but any could have done that one extra thing which could have prevented the collision.

The ATCO said there were two in the circuit. In fact, there were two in the circuit plus one departing. Those extra three words were not called for by the manual of ATC but their inclusion might have improved the mental model of the Diamond pilot.

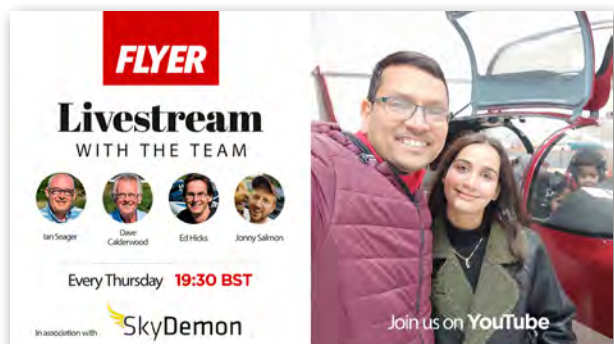
The Diamond, expecting to find two in the circuit, saw two, but one was the departing aircraft. Subconsciously, did that complete their mental model? Their report says they continued to maintain a good lookout, but the Van's was on a constant bearing. It's a truth that collisions only happen when aircraft are closing on a constant bearing. It's also true that we see movement better than stationary targets.

And the Van's. Normally a very precise pilot. Could his mental model have been better if he'd heard the Diamond report crosswind (which was immediately followed by two joiners' calls). Could that have alerted him to the potential conflict?

I believe any one of those could have prevented this tragic accident.

FLYER

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AVIATION NEWS * FLYING WEATHER * FANTASY HANGAR * INTERVIEWS



ACCIDENT REPORTS

With Cat Burton

SAFETY

Unstable approach

Summaries and comments on accident reports from around the world, and this month's Safety Kit looks at calibrating a fuel dipstick

3 May 2022

Unstable Approach

MOONEY M20TN
N728VM
HOLLY RIDGE, NORTH CAROLINA
INJURIES: NONE

The Mooney, built in 2015, was being flown by a 61-year-old pilot with 1,800 hours experience, 42 hours in the last 28 days into Holly Ridge, an 1,100m x 27m grass runway, at 48ft elevation, with broken cloud at 8,000ft and calm conditions. On the first approach, the pilot reported that they were too fast and they executed a go-around. On the second approach, they touched down, but much deeper than their aiming point. They then decided that they could not perform a safe go-around, so applied maximum braking. However, they overran the runway and struck ground equipment, damaging a wing.

Cat's comment. While the decision not to go-around may have been Hobson's Choice after touchdown, it could certainly have been performed safely earlier on the second approach, ideally when it became apparent that it was another high energy approach – or even in the flare, when a touchdown was not made in the first third of the runway.

High and fast

PIPER PA23 AZTEC
N78329
MILTON, FLORIDA
INJURIES: NONE

A Piper PA23 Aztec was being flown by a 77-year-old pilot, with no multi-engine piston rating and with an expired single-engine piston rating. Their last medical

was in 2005, 15 years before the date of the accident.

The pilot attempted a flapless landing at Milton, Florida, onto an 1,100m x 23m runway. The pilot stated that one wheel brake failed to operate, causing a runway overrun. However, while the aircraft had no annual check, the brakes were functioning normally after the accident.

The landing was witnessed by two instructors and a student, who was a safety inspector for the US Marines. All reports were consistent in describing the Aztec as being very high on final and fast over the fence. The touchdown was made after the midpoint of the runway, as assessed by one of the instructors, who was on the ramp, south of the midpoint.

Cat's Comment. While this accident was waiting to happen, due to the lack of suitable training, rating, recency or fitness of the pilot and no recorded maintenance of the aircraft, it was caused by landing fast and deep.

Fuel management

PIONEER 300 HAWK
G-OPYO
SLEAP
INJURIES: 1

Preflight, the pilot estimated, using the gauges, that they had one hour of fuel in the left tank and 30 minutes in the right. The plan was for circuit flying so the intention was to fly on the fuller, left tank.

On the second circuit, the engine vibrated then stopped. The pilot retracted the gear and flaps and tried to restart the engine twice, but failed. They did not notice the fuel pressure nor contents.

They landed in a field short of the runway and hit the far side of a ditch, causing the pilot back pain.

Cat's Comment. In any aircraft which runs off a single, selectable tank, the first instinctive diagnostic check should be to change tanks. Even if the original tank is not empty, as in this case, you could rectify a blockage or a contaminated fuel stop.

Running on empty

STAR-LITE SL-1
G-SOLA
PEMBREY
INJURIES: NONE

The planned flight was a test flight for permit renewal and pilot recency as neither had flown for eight months. The aircraft had been stored with empty

tanks and the pilot had brought two 10l and one 5l container of fuel. However, they were so preoccupied with the test flight schedule that they only put 15l in the aircraft.

After 45 minutes of test flight and 45 of general handling the pilot returned to Pembrey where a combination of rustiness and no headwind resulted in one go around from a fast approach and a second go around from a long float (both good decisions).

However, on the second go around, the engine stopped, resulting in a forced landing in a field, resulting in nose wheel damage from the rough ground. The fuel tanks were subsequently found to be empty. The use of all 15l was consistent with the expected 10l/hr normal usage. The pilot considered the fuel gauges unreliable.

Cat's Comment. The pilot was punished for some good airborne decision making by their distracted flight preparation. Fuel mismanagement is a very common cause of off field landings. In both these incidents, the pilot ran a tank dry when they were expecting to be able to fly for longer than they had. Mechanical fuel gauges are notoriously unreliable. These days, most of us are used to electronic gauges in our cars but the gauges in the average Piper remind me of my 1957 Morris Minor.

SAFETY KIT



WHAT

Fuelhawk dipstick

COST

£15.50

FROM

Pooleys

HOW TO CALIBRATE A DIPSTICK

1. Start with as low a fuel remaining as you can. It doesn't matter exactly how much; we'll work that out later.
2. Dip the tank with the stick you plan to calibrate. If it's a simple dowel, mark the fuel level. If it's a Fuelhawk type stick, note the fuel depth in inches.
3. Add 5 litres of fuel.
4. Repeat steps 2 and 3 until the tank is full. The last amount will probably be less than 5 litres.
5. You now know how deep the full tank is, and you should know the full tank usable figure.
6. The next deepest figure is the full tanks figure minus the small amount from step 4.
7. Each shallower reading is 5 litres less than the reading before.
8. You now have depths, at 5 litre intervals. If you put your readings into a spreadsheet, it will draw a graph from which you can interpolate readings.



FLYING ADVENTURE

Flying Adventure: Ukraine calling...

Private pilots George Gruber and Dick Beath fly their Piper Cherokee 6 'packed to the rafters' with supplies for the Ukraine Appeal from their West Country base to Poland...

Words & Photos Georg Gruber | 20 April 2022

On Sunday evening 20 March my WhatsApp became a stream of messages, many offering medical supplies. Our plan to fly urgently needed materials to Poland, close to the Ukraine border, had featured on BBC Points West, the daily regional news programme for the West Country, and sparked the generosity of people wanting to help. However, an over-committed work diary and having to make space for two days' leave at short notice, together with the requisite travel admin, is not an ideal mix for 'feeling ready and excited to go'. And further exasperation ensued when, on Monday

morning, Magdeburg customs in Germany emailed saying I needed to go elsewhere...

Later that day, we had plenty of supplies, 20 or more boxes, together with a healthy pile of cash donated. So... the flight plan was filed and the online GAR customs forms completed. Our departure farm strip Wadswick is an approved international departure – if you fill in the right forms! My wife Belinda was away, but I still need to apologise to our daughter Mia for being so antisocial during the prep. She has been brilliant in helping with the coordination. After a quick overnight bag and snack pack, I set off to bed about 11pm on Monday.

Tuesday morning at 0425 I woke, had a decent breakfast and a proper weather check for the full route, then joined my pilot friend, Dick Beath, at Wadswick airstrip at dawn to pre-flight and pack our aircraft 'to the rafters'. BBC Radio Wiltshire's Kelly Morgan was present, who is curious about why we are doing this. My sister, Gigi, also arrives to add further elbow grease to sorting the last boxes and loading up. Doors close on our capacious 1969 Cherokee 6, the 300hp engine starts and once the oil is comfortably warm, a 0655 short-field style take-off, into the rising sun, albeit already 10 minutes later than planned.

It was time to catch our breath. So far so good, with our weight & balance still, only just, inside the safety envelope. It feels real now – and good to be on our way. It was early morning about 1,600ft over the Wiltshire countryside, heading towards Reading, turning onto the quiet airwaves of London Information 124.750 to activate our first VFR flight plan.



Cherokee 6 loaded and ready to depart Wadswick

Next, we turn north on the autopilot towards High Wycombe to avoid Heathrow airspace. This is my first time flying this route around London over the beautiful Chilterns and some palatial gaffs. East again past Watford and avoiding Elstree Airfield, staying below the 2,500ft CTA and into Stapleford in Essex to top up the fast-emptying fuel tanks with 214 litres of avgas. I'd already spoken with Oli at Stapleford the day before, who assured me he'll be there early to have the self-service fuel pumps ready from 0800. With no landing fee charged, after a quick good luck greeting, life jackets on, and we climb out in a straight line towards Clacton VOR through Southend airspace under its radar control.

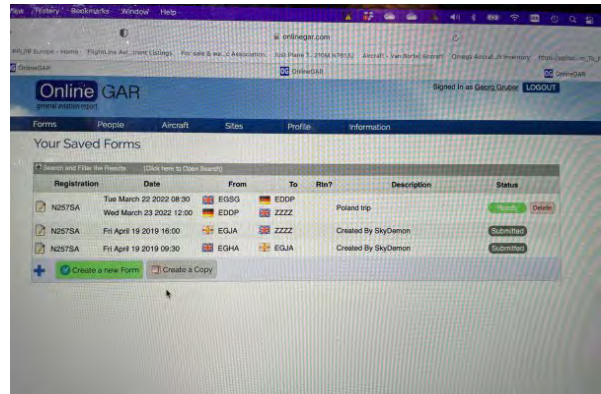
Over the Clacton beacon we veer due-east heading 093 over the Channel to see the morning calm glare off the water, the highway-like shipping channel interspersed with huge static windfarms. After 43 minutes cruising at flight level 55 with a ground speed of about 127kt, we crossed the FIR boundary, arriving overhead the Dutch shoreline just south of Rotterdam at waypoint ODVIL, to stay above the Rotterdam CTA and below the TMA at FL65. We're now speaking to Rotterdam Approach before it hands us over to Dutch Mil Info at Dordrecht to see us over the German border near Nijmegen. Blink and you miss the Netherlands.

We're enjoying the benefit of a two-axis autopilot holding us on course to a GPS point or, with the push of a button, following the heading bug to follow precise radar instructions routing us around restricted airspace, which we have prior permission to fly through. Inside the cockpit, regular scans of the panel from left

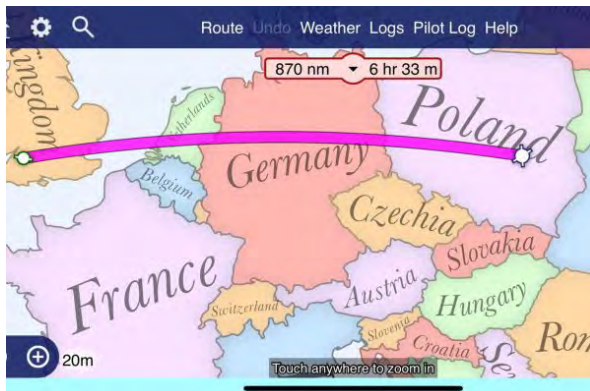
to right, checking oil and engine temperatures in the green, oil and fuel pressures OK, electrics charging and fuses all good, no ice building on the wings, setting the next radio frequencies and sense checking our navigation. The aircraft has recently been fitted with a new three-blade propeller, and once trimmed, flies smoothly free of any hands or feet on the controls. This frees up time to enjoy the views, study the 'knobology' of the GNS530 GPS, or learn a bucket load of more detail about the brilliant SkyDemon flight planning and navigation app.



Dick talking to BBC Radio Wiltshire's Kelly Morgan about the flight



Filing the GAR form



Good old SkyDemon... route looks straightforward



Georg happy to get flying after a nightmare of logistics and planning

At the German border we switch to Langen Information with a QNH of 1032 – a real high pressure is sitting over central Europe giving excellent flying conditions – and continue east through the northern fringes of Düsseldorf, Dortmund and Paderborn airspaces. I double check with Dutch Mil for the right frequency to enter German airspace, which is very accommodating to VFR traffic flying direct routes – if we stay high enough. By this time we were climbing to FL75 routing onto waypoint KUMER at the Munich FIR boundary, en route to our fuel stop Leipzig Halle in the former East Germany.

Approaching Leipzig we had to dive abruptly right, then left onto runway heading to stay below the 2,000ft airspace restriction, to land on Runway 08, on

this vast, deserted airport, the second biggest in Germany. Still vacant of tourism due the pandemic, this airport is a hive of activity at night acting as the European hub for DHL. Once landed, a sharp right turn onto the taxiways for probably two kilometres around to the General Aviation terminal, then behind the 'follow me' van into our parking spot. A small avgas fuel truck comes to fill the thirsty wings, while we tuck into some of our onboard snacks. Then we were whisked off to a loo stop, very friendly customs 'eye-winking' that we needed a PCR test and onto a third destination to pay the landing fees. Clearly, I was anxious that the customs clearance hadn't worked as required, but Herr Steffen assured me on the phone that all would be easy at Leipzig. 'Everyone is welcome' post-Brexit.

The weather was hazy up to about 2,000ft, but not a cloud in sight until our final destination in east Poland a 1,000 miles east from Bath in north Somerset. We could see the ground all the way, although the forward visibility was often a good deal less than 10km. The winds were from the south giving us 7-10kt of 'wind in the sails' assistance. Ninety-five per cent of the route was glass smooth, with just a few bumps passing over the Rhein valley.

We were able to use the many thermals en route to convert the updraft into additional forward speed, maxing out at 164kt of ground speed on day one. We are still only about 25 hours into a new reconditioned engine, so running at high power settings as part of a good running-in regime, with 2,400rpm and fuel flow a thirsty 16 gallons per hour in cruise. At these altitudes on a non-turbo engine, we run out of max manifold pressure above 6,500ft.



Enroute somewhere over northern Europe

Take-off from Leipzig is a short taxi away on 08 right this time. A straight-out climb east towards the Polish border. Back onto Langen Information with a warning of active military zone R76A shy of the border. Before long we pass Goerlitz, to switch over to Poznan Information for some more straightforward R/T, working hard at keeping the comms short and correct. No word of a lie, but everything to do with longer trips has felt a little rusty... but it is comforting to feel the old knowledge rapidly surfacing. Our one mil Europe map was brilliant at showing the next frequencies to call when crossing borders. SkyDemon is great, but I find it less than clear on the next frequency.

The last time I had crossed borders was more than 10 years ago flying the length and breadth of Southern Africa. This is where flying is brilliant, covering vast distances in a few hours, with a bird's eye view that helps my inner Asperger build a mental map of the whole route with geographic relief, key cities and major rivers. Some of the places down there I've called home or have been meaningful places of work. Amsterdam and Osnabruck just a bit north. Straight over Lippstadt which touches on my family history. Düsseldorf was my first-ever five-star hotel stay in my early career. Köln, just to the south, was home briefly 31 years ago while an accidental journalist. Phew, a rabbit hole of distraction, but let's get back to flying this trip...

Once into Poland, we route south around active danger zone D31, then zig zag north past Lubin city, before heading east on heading 091 at 139kt ground speed to waypoint Luben 140 miles away. Yes, the difference between 'Lubin' and

'Luben' needs very clear R/T. Wider open fields, lots of forestry and rectangle farms, the occasional city, rivers and dotted villages along the radial roads. Approaching Luben, two giant open cast mines providing coal to the adjacent power-station puffing white clouds of smoke straight up, before turning onto heading 068 direct to our final destination Piastów, a grass airfield just north of the city of Radom.

Talking to Warsaw Information, we need to stay above the low level military routes and outside of Radom controlled airspace. It's approaching 1700 local time, the very bright day is turning into an orange sunset glow, the haze thickening again. We are now focused on looking out for any conflicting aircraft, as we descend straight onto finals and happen to overtake a small Cessna on approach. Interestingly we haven't seen another GA aircraft in the air all day, just a few airliners leaving contrails. Short finals now, but 1,000ft too high, so a quick orbit left to rejoin left base for runway 05 for a smooth touch down on the welcomingly wide 800m grass strip. A car appears to guide us down some muddy taxiways to the fuel bowser for some further PA32 thirst quenching.



Rafal Siankowski with Dick and Georg at Piastów, ready to unload



Transferring supplies for the Ukraine Appeal into Oleksander's car for transit on to Ukraine



In the sorting hall for the appeal with two local girl guides helping out



Bustling sorting centre run by volunteers

We finally meet our host Rafal, a local flying instructor at Piastów, passionate glider pilot and aviation historian, with a day job as safety officer at Warsaw

Airport. Thursday last week we had a few options of airfields, but short of any English speaking local contacts. One call to my British Aerobatics Academy instructor Maciej 'Magic' Kulaszewski sorted a trusted contact and a 'thumbs up, all sorted' for destination airfield, avgas 100LL, accommodation and logistics for all the support to be delivered. Alongside our super host Rafal Siankowski, we meet Oleksandr Balytskyi, a young Ukrainian private pilot based in Radom who speaks great English. He's an engineer by day and passionate about competitive precision flying, partly sponsored by his employer. Oleksandr filled his car with the medical supplies – all these generous boxes of bandages, plasters, antiseptic, gloves, operating materials, syringes – and was in a hurry to get them delivered across the Ukrainian border into the hands of the civil defence, of which his dad and brother are part. By midnight we had confirmation that this was done, after a four-hour drive to their destination. His sister-in-law has taken it across the border, so Oleksandr can remain in Poland.

Next Rafal's estate car is filled with the other half of the load, mainly personal and feminine hygiene, nappies, baby food and fresh underwear, before we put the aircraft in a hangar and head into the centre of Radom. By this time, fatigue is setting in. It's becoming obvious how long the day has been. Sitting all day with full concentration has left me with a sore neck and throbbing head, which soon disappears after taking a headache tablet.

Not exactly sure what the order of events are now. Rafal's English is good, but we're all working hard to make each fully understood. I'm keen to message 'arrived safely' home, and to my wife visiting our daughter in Texas, and respond to another torrent of 'how's it going' WhatsApps. A short tour of Radom centre and we come to a stop. Not sure if this is our accommodation for the night, but quickly realise we are entering the very professional sorting centre. Past a skip outside for the cardboard boxes through a regular door into a large hall venue bustling with about 50 volunteers fetching, carrying and sorting the various goods received into neat piles on the pre-marked floor. We spot two girl guides and ask for a photo with Dick to share with the Pucklechurch Girl Guides whose team effort collected a large box of things for us to bring along. Somewhat surprisingly to me, nobody spoke English, but word quickly got round these two English guys (real madmen!) had flown all the way from England to drop this stuff here today. Bemusement and gratitude radiated from their smiles and hand signals.

Then it was onto a centrally located restaurant for a delicious meal of ribs and fowl, traditional food done in a modern way, and a large local Żywiec beer. Rafal would not let us pay or make a contribution. Moreover, our overnight accommodation is 'chez Rafal', his wife away on a business trip, on his sofa and study pull-out. Filled and replete with food, solid sleep ensues.

At 0520 the next morning Rafal is in his kitchen prepping a hearty breakfast of cheeses, salami, pickles, cooked sausages, soft scrambled eggs with paprika,

bread, tea, coffee and cake. Wow! By 0630 we're showered and on our way to the airfield. Rafal has a normal working day ahead and is kindly helping us pull our aircraft out of the hangar on this frosty morning, before heading to his day job in Warsaw.



Piastow hangar overnight stop for the Cherokee

A good pre-flight checking fuel and oil levels, control surfaces and undercarriage free of defects and draining a fuel sample for contamination. We fire up the engine at 0732 (0632 UK time or Zulu flight planning time), carefully taxi back to Runway 23 and take off at 0743. Now we climb to FL085 and broadly retrace our route back home. It's prep time for the arrival of US President Joe Biden tomorrow, so today Warsaw information routes us further south, then Łask approach gives us a direct route through Wrocław airspace, as we head to waypoint NAROX on the German border. Over the border we're back talking to Langen Information which guides us north around Dresden airspace for a direct approach into Leipzig. Here we quickly refuel again at the mighty price of £2.58/litre, jump in the friendly service van for customs, and stamp for the British passport holder among us, pay the landing fee, pop to the loo and we're off again. I did laugh at the local 'weather centre' outside the customs office. A sizeable rock suspended above the ground on a cable, with accompanying key indicating 'dry, rain, wind, snow, ice'.

Start up clearance provided by Leipzig Ground via our handheld radio. Closing the doors and donning life-jackets again, we have a 10 minute threshold wait for 26L, while two Boeing heavy metals ahead of us, depart, and arrive respectively.

Next we're rolling for a straight-out climb, staying VFR outside of controlled airspace until we can climb to FL85. I request a direct route to waypoint DEPAD, but I am encouraged to remain outside controlled airspace. Switching to 'ein bisschen Deutsch' ('a little bit of German'), we are granted direct routing.

For most of the journey, the outside air temperature is about two degrees at altitude, and inside our cabin heating is working well. Cabin air is warmed off the exhausts, so we also carry a carbon monoxide monitor to ensure that all remains safe throughout. Fortunately, we've also filed flight plans for each sector, so no need to repeat all the details as you do when asked to 'pass your message' in VFR flight.

From DEPAD near the Dutch border, we switch to Dutch mil which requests us to descend to 5,500ft. Moments later we're talking to Amsterdam, coasting out at ODVIL and playing radio ping-pong, until they encourage us to call London Information before we cross the FIR. Our transponder has occasionally been playing up, sometimes indicating us at FL105 which rings alarm bells for air traffic control, or not giving any altitude information, requiring us to confirm our altitude from time to time. Sometimes switching it off to 'recycle' helped, mostly not. Clearly something for us to get checked out properly, as we spent most of this trip travelling through transponder mandatory space.



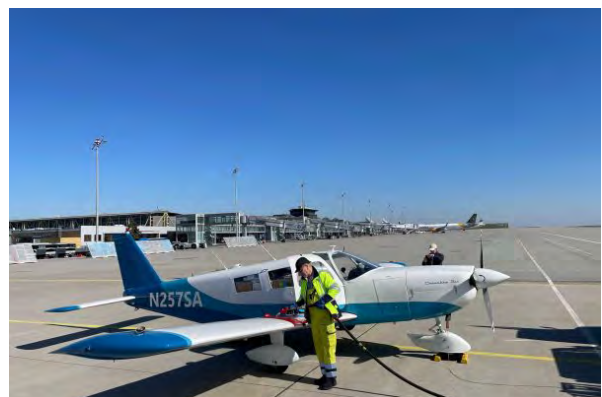
Sunset the night before the return journey



Refuelling at Piastów airfield



Routing clear of an expected visit by President Biden



More fuel, at Leipzig

Although we have sufficient fuel to get us all the way home to Wadswick, we decide to call into Stapleford again to fill up. The service is great and fuel here is cheaper than anywhere else we have recently refuelled. We've made excellent time, so no harm in a good English cuppa, a hearty bowl of soup with bread, and a leg stretch in the fresh air. A quick message 'nearly home' and we're off again after some waiting at the busy Stapleford threshold. This looks like a very well run training airfield, with many younger male and female student pilots about.

Another hot engine start accomplished, now onto the final leg. Low level back around Heathrow, past the only few clouds we see on the whole trip and due west from Reading. By this time we can relax and take in more of the surroundings. I am really surprised at the beautiful countryside and some 'obscenely' large properties as we route back avoiding a microlight field and Camilla's home near Lacock to arrive back on the ground at Wadswick by 1640. We hangar the aircraft, replace the seats, thank each other for a safe flight and great adventure, before heading home with a glow of satisfaction at a 'job well done'.

Why did we do this? To help people in need and provide some tangible support in getting goods to where they are needed. We have also made some new connections with people on the frontline who are able to share the daily needs of those affected.

Our Polish and Ukrainian contacts are very grateful for this, to write: 'Thank you very much. Medical aid already in Ukraine. People are in awe of what gesture you have made'. This has been yet another lesson in life to step out of your comfort zone, leverage your knowledge and networks, trust that people generally want to help, and appreciate specific guidance on how they can help. It feels much easier having done the trip... maybe I worry too much about the details, but then that's me.



Georg & Dick, heading home, mission accomplished



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TOP GEAR

Garmin inReach Mini 2

Words Ian Seager

4 May 2022



FROM £345 | GARMIN.COM



Don't panic! Initiate SOS!

The Garmin InReach Mini 2 is a global satellite messaging device that can be used for rudimentary communications or SOS messages when you are out of mobile coverage and in need of getting a message, SOS or otherwise to someone.

The tiny unit measures just 5.2 x 9.9 x 2.6 cm and weighs 100g – there's a small mono screen and all functions are controlled through the use of four separate buttons. The fifth button is the SOS button, using it requires the cover to be opened (it protects against inadvertent activation) and the button to be pressed until you hear that the unit has activated. This will trigger an alert at a Garmin-contracted monitoring station, and the centre staff will activate emergency services for wherever you happen to be, as well as advising your emergency contacts (specified during setup) of the situation.

The on-screen menu and keys are a little clunky, but things are made significantly easier if you pair the InReach Mini 2 with the Explore App in your smartphone, making the sending and receiving of messages much easier.

Turning tracking mode on will upload your position at a specific interval (10, 20, 30, 60, 120 and 240 minute settings are available), and your track will then be displayed on a web map. Obviously the frequency of position reports will affect battery life, as will several other factors like temperature and the view of the sky (the more obscured things are, the more the battery will be put to work) – with default 10 minute intervals and a clear sky, the little unit should give you something like 14 days service.



Definitely don't panic! Found the keys now, will be late...

Messages are sent via the Iridium satellite network and can be sent to an email address or as an SMS to a mobile phone... and it wouldn't be 2022 if you couldn't also link to your Facebook and Twitter accounts, useful for influencers who want everyone to know where they are at all times! Composing messages directly on the unit is a bit of a faff, so best to use the app. If you have to use the unit it is possible to choose from a number of pre-composed set messages which might make things easier.

This functionality comes at a price. There's the initial £350, but you will also need an ongoing subscription, of which there are six to choose from. Three of them offer plans that run for a year and range between £12.99 and £49.99, while the

other three offer the same plans. But with a one month commitment, these will cost between £14.99 and £64.99 a month.

Honestly, if you are flying around the south of England you are unlikely to need an InReach, but if you fly in more remote areas, or get involved in sailing, mountain biking or other activities that might find you out of touch and somewhat inconvenienced, it makes much more sense.

Available here.

BY ASSOCIATION

AOPA UK: The long road to change

By Martin Robinson, CEO of the Aircraft Owners and Pilot Association (AOPA) UK | 16 April 2022



On 19 January 2006 I was called to give evidence before a Transport Committee, whose Chair was the indomitable Mrs Gwyneth Dunwoody and a panel of eight MPs on the “Work of the Civil Aviation Authority”.

I began by saying that the fundamental problem was the lack of Government policy. Today we have the GA Road Map which I think is unlikely to aid growth in the activity.

Talking about carbon and electrification of GA aircraft will not be on most aircraft owner’s agenda. How to reduce operating costs without compromising safety I think is much more relevant. That and maintaining aerodromes through

a proper national Government policy whereas today most GA aerodromes are left to local decisions as has been the case for decades.

Another subject that would help certified GA would be if the CAA automatically accepted FAA STCs for privately used GA aircraft up to 5700kg as a starting point.

Whilst proportionate risk-based regulation would benefit GA there is no direction as to how this may be achieved.

Prior to the 2006 hearing I submitted a Memorandum to the Committee covering six points which was then used to form some of the discussion. They included:

- No independent oversight of the CAA*
- CAA's excessive charges and over-regulation
- CAA senior executives change too often (led to eventual creation of CEO position)
- Commercial Aviation and GA have entirely different financial environments
- Over-regulation
- No justification for 6% tax (which has since been reduced to 3.5%).**

**No ombudsman to appeal to about decisions taken by CAA where they could be challenged.*

***We were concerned about the CAA's charges as applied to GA.*

The point was made about the rationale of the CAA and that must be examined, this came out of the Joint Review Team later in 2006. But AOPA was excluded from that review! Recently the CAA announced it was starting to look at alternative funding models (15 years later), primarily I believe because of the pandemic.

However, the primary principle is that charging the regulated entity remains unchanged. Therefore, I do not expect that the fees GA pay to the regulator will change a great deal over the coming years.

However, the CAA doesn't have it within its gift to change what the Government requires of them. It will be up to the Government to amend the charging principles, just as in the same way the Government could zero rate VAT on flight training – if it wanted to. The problem is the hierarchy of Government where the Treasury trumps all other departments.

I also brought up in 2006 the subject of GNSS approaches. The CAA trialled six overlay approach procedures in 2007 to assess whether GNSS approaches were safe to introduce as permanent procedures! The French were already publishing GNSS approaches, whilst EGNOS promised a safer signal due to augmentation,

the Government is now saying it is looking at the feasibility of a national augmented system by the end of this decade – so in 15 years we've not moved very far.

In responding to Mrs Dunwoody, I said, "The CAA was slow to react to new technology." I referred to GPS based approvals for GA aerodromes, which would provide more business opportunity as well as improved safety for GA pilots. 15 years later I stand by my words.

In March 2015 the DfT / CAA worked up a GA Strategy. Robert Goodwill MP was the Secretary of State for Transport, and the Right Honourable Grant Shapps MP was a minister without portfolio. York Aviation was commissioned to carry out some economic research which provided some economic rigidity to the claims being made by GA. £30 billions of Gross Value Added (GVA), supporting more than 38,000 jobs.

In 2006, in an interview AOPA did when the head of EASA was Patrick Goudou, he recognised and said it was his intention to reduce the burdens on GA. He also said we need GA in Europe, and we need to promote it because it is weak. Yet after nearly 20 years of EASA, GA remains weak, because the policies remain wrong.

FLYER CLUB LATEST

FLYER Club Member Photos

Where have members and readers been recently?

It's been a busy few weeks of flying as the country has enjoyed some good weather. Take a look at members' photos below and don't forget to submit yours to editored@seager.aero

Not a member? Join the Club at flyer.co.uk/membership

4 May 2022



David Edes took YouTuber and pilot Christy Caroline Wong-Shafer flying from Easter this week.



Riccardo De Nardis flying at sunset



Rachel Ramsay flying a Wasp



Paul Shenton going vintage!



Matt Coles formation flying.



Mark Chambers flying in Northern Ireland.



Kevin Hale - spot the two runways...



George Holt celebrating his 20 year anniversary of flying.



Dave White on his way to AERO 2022.



Ashleigh Duggan enjoying the good weather.



Anthony Crowe at Sandown.



Alex Smee at Sywell for a brew!

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