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Editorial

DAVE CALDERWOOD

Just a minute...

It's coming up to the middle of March as we finish putting this edition together with just a few signs that spring has finally sprung. Plenty of *FLYER* readers have been out flying and clocking up minutes towards our challenge total of 2,022 – 33 hours 42 minutes. The #*FLY2022* initiative, supported by Bose and Echelon Aviation, has caught on with regulars posting in the *FLYER* Forum about their flights so far in 2022.

Of course, weather gets in the way of lots of plans, especially when fitting in flying around work and family commitments. One Forum contributor said he'd had 22 cancellations so far in 2022 but fear not, as the days get longer and the weather improves so will the opportunities to fly increase. Another, Martin Leusby, is up to 696 minutes already!

On pages 68-69, photos of some of the flying accomplished by *FLYER* Club members recently shows it is possible. If you have a photo to share, let Jonny know. His details are on the left and also on p68.

This seems an opportune moment to talk about what's coming up for *FLYER*. Regular watchers of our Thursday night Livestream (7.30pm on YouTube) will know that we have a brand new *FLYER* experience on the way. In fact, it'll be launched by the end of March and we'd really appreciate your feedback. It's a brand new website where all the usual *FLYER* content will be published and much back issue material too. It'll be searchable and, most importantly, easy to read and enjoy no matter what kind of device you view it on. Whether that's a desktop computer with big screen, laptop, tablet or smartphone, Apple Mac or one of the others, the content will adapt to the right size.

To launch, all of the content will be free to view (except *FLYER* Club benefits such as the FREE landing fees) for the first four weeks or so. After that, some will be free but some will only be available to paid-up readers and *FLYER* Club members. If you're already a subscriber or *FLYER* Club member, you'll automatically be able to sign in. This is the next and biggest stage in our digital transformation but by no means the last. We're already planning more and exciting ways to make the *FLYER* Club the best online flying club in the world. We'd love to have you join us.

dave.calderwood@seager.aero

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At Lycoming, we are STILL FIGHTING. We appreciate your patience, and we offer our gratitude to those workers and organizations that continue to fight with us.

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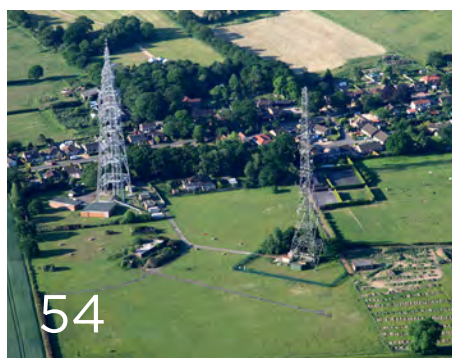
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Take-off

Aviation news from around the world – for the latest visit www.flyer.co.uk



Europe moves to ban lead in avgas

Above Unleaded fuel is available but with 91-octane rating. What's needed is 100-Octane unleaded

Moves to ban lead in aviation gasoline (avgas) are not just in the US (see p7) – Europe is also on the brink of banning Tetraethyllead (TEL), the chemical which adds the lead in 100LL fuel.

Europe Airports, which represents GA at the EU, recently warned of the upcoming ban.

It reports that the European Chemical Agency (ECHA) wants to transfer Tetraethyllead (TEL) as a toxic substance to the REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) register. ECHA lists TEL on its 'List of substances of high concern'.

Europe Airports said, "We know from reliable sources that all Member States voted for this process."

TEL is needed in avgas 100LL for two reasons, as Shell Aviation explains: "Lead compounds from

TEL form a protective layer on the valve seat and prevents the soft valve seats from eroding.

"The other more significant problem with unleaded fuels is octane rating. Higher octane fuels mean a higher compression ratio or supercharging ratio can be used, which then leads to a higher engine cycle efficiency."

The UK Aircraft Owners and Pilots Association (AOPA) is promoting the use of unleaded fuels.

Malcolm Bird, a director of AOPA UK, told *FLYER*, "This is something that AOPA has been working on with the DfT and involving the LAA and many others. We are keen to see a sensible transition away from the use of lead in aviation fuel.

"The problem is that most pilots/owners do not know whether their aircraft can run on the unleaded fuel. We have been

pushing the CAA to add this information to G-INFO so it is easy to look up."

AOPA UK has come up with a five-point plan:

1. Make unleaded aviation fuel more generally available at an attractive price.
2. Make it easy for pilots to know whether their aircraft can use unleaded aviation fuel, e.g. placards by fuel filler caps and information added to G-INFO.
3. Encourage people buying new aircraft to only consider models that are capable of running on unleaded fuel.
4. Pursue the authorisation of a higher octane unleaded fuel for those aircraft not able to run on the current unleaded variants.
5. Encourage the introduction of electric aircraft charging facilities widely at airfields.

US associations unite on unleaded fuel plan

The EAGLE has landed – the Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative, that is, and it’s supported by all of the main aviation groups in the US.

EAGLE is a plan to move piston-engine aircraft from leaded avgas to lead-free aviation fuels by the end of 2030, and calls for a viable high-octane unleaded replacement for the current 100 octane lowlead aviation gasoline (100LL), without compromising the existing transportation infrastructure, aviation safety, and the economic and broader public benefits of general aviation.

EAGLE is built on four key pillars – Regulatory and Policy, Unleaded Fuel Testing and Qualification, Research and Development, and Business Infrastructure and Implementation.

Industry stakeholders and the FAA (the US aviation authority) will begin working on the EAGLE initiative right away with a partnership symposium, to define a detailed workplan, planned for March.

Jack Pelton of the Experimental Aircraft Association



(EAA), said, “Our goal is to solve the complex issues surrounding lead-free aviation fuels with innovations that ensure safety, as well as reliability, marketplace availability, and continue to provide the countless benefits of general and recreational aviation to our nation and the world.”

Pete Bunce of the General Aviation Manufacturers Association added, “The future of light general aviation depends on moving away from leaded fuels.”

Mack Rutherford – yes, Zara’s brother – is 16 and on 17 March 2022 he is due to start an attempt to beat the Guinness World Record as the youngest person to fly around the world solo in a small aeroplane.

Mack comes from a flying-mad family. Both his father, Sam, and mother Beatrice, are pilots and, famously, his older sister Zara. He qualified for his pilot licence in September 2020 at the age of 15 years and two months.

Mack has flown hundreds of hours with his dad, a professional pilot, including two Trans-Atlantic crossings.

Mack will start his trip in Sofia, Bulgaria, the location of his sponsor, ICDSOft. From there he will fly south to Africa, visiting Congo, Madagascar and Mauritius.

Next he will head north to Oman, UAE and east to Kazakhstan and across Russia (this part of the route will have to be replanned). He will cross the Bering Strait into Alaska and continue along the west coast of America to Mexico.

Then he will head north again

Another Rutherford – Mack – aims to fly round-the-world

along the east coast to Canada, he will cross the Atlantic, stop in Iceland, the UK and finish his journey in Sofia.

Mack has British and Belgian

nationality. He’s aiming to beat the world record set by Brit Travis Ludlow last year.

Follow Mack on his website, MackSolo

Below Thumbs up from Mack Rutherford as his round-the-world bid is announced



Take-off

Peers hold Govt to account over EGNOS withdrawal



The UK's withdrawal from the European Geostationary Navigation Overlay Service (EGNOS) is continuing to be questioned by peers in the House of Lords citing a 'Safety of Life' argument.

Questions submitted by the peers have also revealed that the cost of staying a member of EGNOS was €30-35m per year. The figure was announced by Lord Callanan in answer to a question from Lord (Tony) Berkeley.

Tony Berkeley's interest is said to have been sparked after being stranded in the Scilly Isles over Christmas 'because it was a bit cloudy'. He submitted a written question, "To ask Her Majesty's Govt what consultation they undertook on the economic and safety impact of the cancellation of EGNOS."

Baroness Vere of Norbiton, from the Department for Transport, gave this written answer:

"During the negotiations leading to the 24 December 2020 EU-UK Trade and Cooperation Agreement, the Government's policy on the UK's future membership of the European Geostationary Navigation Overlay Service (EGNOS) was informed by discussions with the UK's independent airspace and safety regulator, the Civil Aviation Authority.

"These discussions included considering the likely impacts on the UK's aviation sector if the UK withdrew from the EGNOS programme set against the costs to the taxpayer of remaining within it. The Government concluded that on balance, continued UK membership of EGNOS represented poor value for the taxpayer."

Above Access to St Mary's Airport on the Scilly Isles is limited in bad weather

Inset EGNOS satellite Galileo in orbit. The UK is planning a British version but it's said to be years away from entering into service

Previously, the CAA had said it played no part in the decision. A spokesperson for the CAA said they had offered explanations, not an opinion.

Tony Berkeley said, "The Isles of Scilly and many of the Scottish islands rely on air help for medical emergencies, either a helicopter or a fixed-wing aeroplane.

"If people cannot fly due to bad navigation, usually fog, their health is at risk. I am not sure how the Minister for Aviation can say that that is not good value for money. I do not know how much he puts on a life that is lost because you cannot fly, when there is an alternative."

Two other peers, Baroness Foster of Oxton and Lord Davies of Gower (Byron Davies, the GA Champion), are also questioning the decision.

Baroness (Jackie) Foster is ex-British Airways and a former MEP who was involved in helping define the Single European Sky and Galileo. She pointed out, "Since EGNOS was stopped last year, a number of our peripheral, small airports have been put in huge difficulty.

"We have flights either being cancelled or their safety jeopardised, for both passengers and crew. They are hugely reliant on life-saving services coming in, whether to take people to the hospitals on the mainland or for other reasons."

Byron Davies, an owner-pilot, said, "Above all, it is the safety access which the EGNOS service provides and which has now been lost due to the Government putting value for money before the Safety of Life service."

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Take-off



First flight for Tecnam's Rotax/Rolls-Royce hybrid

Italian manufacturer Tecnam Aircraft has made the first flight of its hybrid-powered P2010 H3PS aircraft.

The hybrid powerplant has a 104kW Rotax 915iS internal combustion engine coupled with a Rolls-Royce 30kW electric motor. In total, there's 134kW max power – about 180hp.

Tecnam Aircraft's R&D director Fabio Russo said, "Though H3PS is not intended for market purposes, our successful flight tests demonstrate that hybrid powertrain, with combustion engine coupled with an electric motor, can bear the same useful load of the traditional 180hp combustion engine."

H3PS stands for 'High Power High Scalability

Above Testbed for the hybrid power unit is Tecnam's P2010
Inset Inside the test aircraft during the first flight

Aircraft Hybrid Powertrain' and is funded by the European Union. The flight proves the aircraft's scalability potential, lower emissions and power management technology.

Tecnam MD Giovanni Pascale Langer said, "Our development focuses on three key pillars: environmentally friendly, technologically viable and marketable solutions. We do this by leveraging our multi-generational expertise, research and development, next-generation technology, and strategic partnerships.

"I look forward to seeing H3PS inspire more innovation and drive our industry forward with cleaner, more efficient technologies."

Rob Watson, president of Rolls-Royce Electrical added, "Working with Tecnam and Rotax has been hugely beneficial, and this project has continued to build our capabilities in delivering all-electric and hybrid-electric power and propulsion systems."

BAE and Pipistrel to develop electric aircraft

BAE Systems and Pipistrel Aircraft are to collaborate on the development of an electric aircraft.

BAE will apply its expertise in advanced military aircraft while Pipistrel brings its knowledge of electrically powered aircraft.

Ian Muldowney, Chief Operating Officer, BAE Systems Air, said, "We're excited to be working with Pipistrel as a well-known leader in the light aircraft space, specialising in electric power. This is an opportunity to help evolve the range of products and services we can offer to our customers who are responding to rapidly changing defence and security priorities.

"While operational capability will always be the priority in defence, we know that solutions that are sympathetic to the environment are becoming increasingly important and our collaboration with Pipistrel presents a fantastic opportunity to leverage our joint expertise."

Ivo Boscarol, founder and CEO of Pipistrel Aircraft, added, "To address climate change, an



Above Artist impression of a Pipistrel Velis Electro in BAE livery

unprecedented application of zero-emission technologies is necessary, especially in aviation."

Few facts have been revealed so far. When *FLYER* asked, a BAE spokesman said it was only releasing what is in the announcement.

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Take-off

General Aviation bounces back with sales up in 2021



Sales of General Aviation aircraft soared last year despite – or perhaps because of – the pandemic. All types of aircraft saw increases, according to a report issued by the General Aviation Manufacturers Association (GAMA). Aircraft deliveries were valued at \$25.2 billion, an increase of 10.2%.

“The strength and tenacity of the General Aviation industry has provided a strong foundation for the industry to rebound from pandemic-related setbacks with a powerful showing in 2021,” said Pete Bunce, GAMA President and CEO.

Among the highlights:

- Piston-engine aeroplane deliveries up 5.5% to 1,393
- Turboprop aeroplane up 19.0% to 523
- Business jets up 10.2% to 710
- Piston helicopters up 27.5% to 181
- Turbine helicopters up 24.8% to 645
- The preliminary value of aeroplane deliveries for 2021 was \$21.6 billion, an increase of approximately 7.6%
- The preliminary value of helicopter deliveries for 2021 was \$3.7 billion, an increase of approximately 28.0%
- The piston engine aeroplane market in North America accounted for 68.7% of overall shipments
- The second largest market for piston aeroplanes

Above Cessna’s Turbo Skylane T182T is back! The turbo 182 was dropped in 2013 when Cessna had expected to introduce the Jet A burning 182, but the aircraft hit problems during tests. The new T182T is powered by a Lycoming TIO-540 engine with a Hartzell Engine Technologies (HET) turbocharger, providing the aircraft with 235hp up to 20,000ft

for the seventh year in a row was the Asia-Pacific market at 14.4%

- Turboprop aeroplane shipments to North American customers accounted for 52.6% of the global deliveries
- The second largest market for turboprop aeroplane deliveries was the Latin American market at 15.7%
- The North American market accounted for 65.9% of business jet deliveries The second largest market for business jet deliveries during the year was Europe at 18.0%

Manufacturer deliveries in 2022

American Champion 20, value \$5.39m
Cirrus Aircraft 528, value \$632.91m
CubCrafters 50, value \$11.54m
Daher (Kodiak + TBM) 68, value \$277.83m
Diamond Aircraft 240, value \$164.89m
Epic Aircraft 10, value \$37.9m
Extra Aircraft 22, value \$7.84m
Flight Design 41, value \$6.51m
ICON Aircraft 18, value \$n/a
Pilatus 135, value \$990.69m
Piper Aircraft 74, value \$n/a
Sonaca Aircraft 19, value \$4.58m
Tecnam Aircraft 203, value \$92.13m
Textron Aviation (Cessna + Beechcraft, piston and turbine) 546, value \$3,279.52m
Robinson Helicopters 244, value \$151.76m.



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RNAV substitution endorsed by the CAA

Ed Bellamy explains the CAA's recent policy on Area Navigation (RNAV)

In the en route phase of Instrument Flight Rules (IFR) flight, routing with direct reference to nav aids has long been a thing of the past. The first European 'Area Navigation' (RNAV) mandate came in 1998, but the air traffic system had already moved in that direction.

Some pilots older than me may remember using devices like the BendixKing KNS80 to create waypoints within VOR/DME coverage, but it was not until the arrival of systems like the KLN94 or Garmin 155 that light GA aircraft could seamlessly fly RNAV routes. Routing was now possible to waypoints or nav aids hundreds of miles away and beyond reception range.

Despite this, the use of Global Navigation Satellite System (GNSS) for instrument approach procedures (IAPs) lagged. In the mid-1990s the FAA introduced the 'overlay' programme in the USA, whereby many conventional approaches were designated as 'or GPS'. Provided certain design criteria were met (not all IAPs could be coded for GNSS use), the FAA authorised many VOR or NDB approaches to be flown with an IFR certified GNSS system instead, provided the procedure was retrievable as a series of waypoints and legs from the system database. The FAA have now largely retired the 'or GPS' nomenclature in favour of IAPs designed as RNAV (or Required Navigation Performance (RNP) to use the more current term) from the outset.

Procedure design

The UK did not follow the US example for GPS 'overlays' but did introduce some RNAV (GNSS) approaches in 2006. Back then procedure design was still undertaken by the CAA itself and a trial was instigated at several GA aerodromes such as Shoreham, Gloucestershire and Cambridge.

Many were quick to point out that these GNSS procedures still required an NDB for the missed approach element, somewhat defeating the innovation. The reason given at the time was concern that aircraft needed a back-up provision, should the GNSS signal be lost. In practice this risk never materialised, but it has proven a stubborn idiosyncrasy to regularise – airports pay for procedure design and even something as simple as changing a conventional missed approach to RNAV involves cost and an approval process.

Most GNSS systems still provide RNAV guidance during a conventional missed approach phase, even if officially the underlying navaid should be the primary means of navigation. However, in February this year the CAA published an official policy on RNAV substitution (CAP1926), setting out the circumstances in which RNAV capability may be used to fly a conventionally defined procedure, without needing to receive the signal from the relevant navaid. This is a welcome document that puts the subject on a more stable policy footing.

It should be noted that CAP1926 does not authorise

substitution on the final approach track of an instrument procedure – so if flying an ILS, VOR or NDB approach, the relevant ground and receiver equipment still needs to be functioning, even if a database retrieved 'overlay' is also used to provide guidance.

However, the missed approach phase is authorised under CAP1926 for RNAV substitution, along with other elements such as DME arcs or VOR/NDB used in standard arrival or departure routes. Thankfully there are now very few instrument runway ends in the UK that lack either an RNP or ILS approach, so with substitution authorised for the missed approach, there is one less reason to carry an ADF receiver.

CAP1926 details full limitations and guidance for the policy. Some reminders are certainly pertinent, such as the need to ensure equipment is certified for the intended operation and that procedures to be flown are correctly coded and database retrievable.


GNSS system

In 2016 a Beech Baron crashed on approach to Dundee when the pilot appears to have been using the GNSS system to get range information to the runway – however the NDB, several miles west of the aerodrome, was apparently selected. The aircraft struck terrain short of the runway, killing both occupants.

We will never know exactly what was going on in the cockpit, but the aircraft was cleared to fly an ILS approach. It may be that some or all the conventional navaid receivers were not working nor configured correctly. My suspicion is that faced with a perceived loss of ILS and/or DME reception, the pilot tried to improvise with the GNSS and manually selected the NDB and inbound course, not realising this would create a mismatch with the desired range to the runway.

Had the complete coded 'overlay' procedure been retrieved from the GNSS database, the GNS530 device may have given the correct range, even if flying the ILS without a valid ground signal would obviously still have been prohibited.

So it is important to use RNAV substitution in a structured way. When flying part of a coded overlay (for example a missed approach leg), the coding and associated 'path terminators' (the information that tells the device how to sequence one leg to the next) must be correct. As the Dundee example highlights, confusing over range can be deadly. Some complex conventional arrivals or transitions cannot be not accurately coded and therefore may be missing from databases.

As more designated RNP approaches are published, the issue of substitution will slowly decline in relevance, but for now there are still plenty of conventional nav aids around to use it on. 

More Info: [Caa.co.uk/cap1926](https://caa.co.uk/cap1926)



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In Brief

Leading Edge Aviation has launched a £150,000 bursary which is effectively £5,000 off the cost of an integrated ATPL course.



United Aviate Academy has purchased a fleet of 25 Cirrus TRAC SR20 aircraft for its ab initio training programme.

Six Skyborne graduates have secured jobs with Wizz Air UK: Adam Prince, Christopher Coles, Matt Langrudge, Thomas Pearson, James Moss crop and Henry Wallace.



Airbus and engine maker CFM International are to collaborate on a combustion engine fuelled by hydrogen.

Scotland's ACS Flight Training is celebrating 15 years and investing to meet increasing demand for pilot training and aviation maintenance.

New Norwegian airline Norse Atlantic Airways and OSM Aviation Academy are collaborating to launch a cadet pilot programme. Norse will begin flying in the second quarter of 2022.



Airbus Flight Academy Europe (AFAE), a subsidiary of Airbus, has inaugurated a new campus in Angoulême in the south-west of France. AFAE has ordered four new Elixir aircraft for pilot training.

Pilot Careers Live returns to London on 9 April



Above Talk to past and current pilot students at PCL **Inset** The event will be streamed live and available on catch up

British Airways will be one of several industry experts giving a presentation at the next Pilot Careers Live event.

It's being held at the Sofitel Hotel, Terminal 5, London Heathrow Airport on Saturday, 9 April. Tickets are now on sale (see link right).

More than 25 exhibitors will be attending Pilot Careers Live. Doors open from 0900-1700 and, like last November's event – the first post-pandemic – it will be held in two sessions, morning and afternoon.


Many of the UK's and Europe's leading training providers, known as Approved Training Organisations (ATO), will be there to answer questions on what training it takes to become a professional pilot and to show off their facilities.

Among other exhibitors, the Royal Air Force will also showcase careers as a pilot and also beyond the flightdeck.

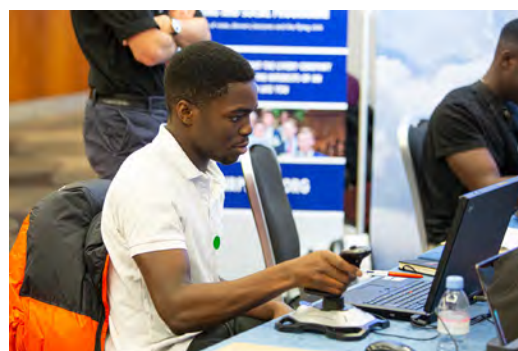
If you are thinking about training as a helicopter pilot, there are experts to help navigate a career path such as working offshore or on Search

& Rescue operations.

Before taking any pilot training, you need to know if you can pass the required medical examination – and you can find out all about this.

The seminars will be the same in both sessions, morning and afternoon. If you happen to miss a presentation, don't worry! They will all be recorded and available afterwards to view on catch up. 

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I Get Paid for This...

Eric Burgos

Bizjet pilot [@rico_pilot](#) leads flying experiences to the world's greatest destinations. Interview by **Yayeri van Baarsen**

How did you get into flying?

I've wanted to fly ever since I was born. At the age of 15 I started in gliders and when I was 17, I flew fixed-wing aircraft and hot air balloons. However, because of my astigmatism, my eyesight wasn't good enough to become a professional pilot. In 2012 I had an operation which left me with 10/10 vision in both eyes, and immediately afterwards I moved to the USA to start my professional flight training.

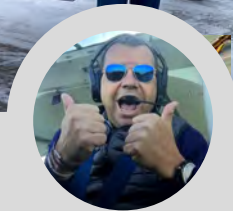
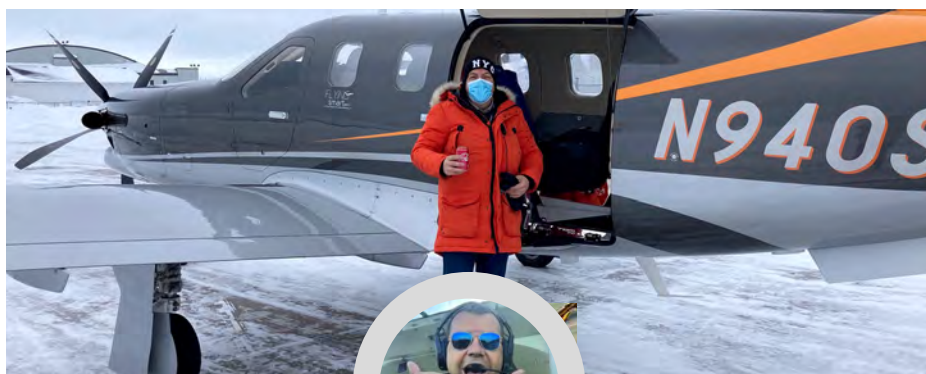
Tell us about your job?

I'm the owner and CEO of Burgos Aviation, which is based in France. Working as Captain on a Bombardier Global 7500, based in Hong Kong, I get to fly all over the world at a fast pace. For this, I'm on a one-month-on, one-month-off roster which leaves plenty of time for my other flying work. For Air Journeys, I escort pilots on luxury trips. I'm also a ferry pilot for Daher and Piper and offer coaching, for example when an owner switches from a Cirrus to a TBM and needs a certain number of hours flying with a coach pilot.

I very much enjoy being my own boss. Since I'm the only person in Burgos Aviation, I can manage my own time and do what I like. Although the Global is nice to fly, it's like a truck: after take-off you soon press the autopilot button. I like hand-flying, which is possible in the TBM, Piper Meridian, and Pilatus PC12 that I pilot for Air Journeys. We offer escorted flying journeys, accompanying owners who want to fly their aeroplane abroad. For these trips, we organise everything – from the itinerary to the hotels, guides and transfers – at a very high level. This work brings me to the world's greatest destinations, such as the beautiful islands of the Caribbean and Africa, where we saw gorillas up close on a helicopter tour in Rwanda. An Air Journey tour needs to be perfect. As journey director I'm not just managing the aeronautical part, but also everything else... It can be very stressful, especially with a group of 25 people, but I love it.

What training did you have?

In 2012, I trained at the Skymates Flight Academy in Arlington (Texas, USA), where I obtained my ATPL as well as type ratings for the Cessna Citation 525, the Embraer Phenom 100 and the Phenom 300. Back in France, I flew the Pilatus PC6 for a while, dropping parachutists for a skydiving centre. In 2015, I obtained the Dassault Falcon 900 type rating and moved to Hong Kong where I was offered a job as a Captain. Afterwards, I obtained the type rating for the Bombardier Global 5000, and in May 2021, for the Global 7500.



Flying CV

Owner of the French company Burgos Aviation Eric Burgos offers everything from escorted flying and ferrying to coaching and flight instruction.
Started current job 2017
Now flying Socata TBM, Bombardier Global 7500, Pilatus PC12, Piper Meridian
Favourite aircraft TBM. "It's so fast and easy to fly, it's just an amazing aircraft!"
Hours at job start Approx. 6,000
Hours now Approx. 7,500

"I like hand-flying, which I can do in the TBM and Piper Meridian"

What's been your favourite flight?

Flying a TBM over Kabul and the Hindu Kush mountain range in 2019. Flying over Kabul is just crazy – we were speaking with the US military over ATC.

I was so happy to get authorisation for this flight, as normally nobody gets to fly over there. I flew together with an owner who wanted to fly his TBM to Thailand. The entire journey took three months to organise. We visited Petra when landing in Jordan, and the Taj Mahal when stopping off in India. After spending five days in Thailand, we flew back via the Silk Road.

And your favourite airfield?

Narsarsuaq Airport in Greenland. All the icebergs make for such a nice view, and the final approach there is amazing. Since I usually do 10 to 12 transatlantic flights a year, I visit this airport quite a lot.

Do you get to fly much outside of work?

Definitely! I often go flying in the French mountains, which I love, or visit the French Riviera by aeroplane. I fly either by myself, with an owner, with my family, or with my dog – I just need to be in the air.

What's your most valuable career advice?

Just do what you want. That's it. It's not complicated – I'm doing it all the time!

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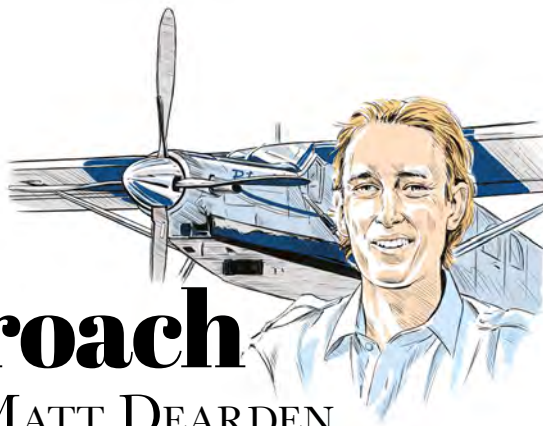
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On Approach

MATT DEARDEN

Getting it right...

You might remember a few weeks ago, it all got a bit windy for a week or two while various storms worked their way across the UK. Any sensible aviator would have looked at the numerous warnings from pretty much every source of weather forecasting under the sun (that's the big orange thing in the sky we sometimes see, in case you were wondering) and decide it might not be such a good idea to go for that £100 hamburger. Heck, with all the dire warnings over Storm Eunice, I suspect a lot of people were put off even leaving the house, and perhaps wondering if they still had a roof on it when they eventually did...

But many professional aviators had to go to work and go and do battle with the storms while maintaining safety standards. But how on Earth do you plan a flight when everyone is telling you that you should cancel? And how do you make the call to go or not when you have non-aviation clients asking if it's safe to fly and how bumpy it will be? (Spoiler: safe and very bumpy!).

The first thing you must do is try and mute all the hysteria on the news over these things in order to form your own objective opinion on what the weather is going to do. I don't own a TV or watch the news but I am on social media, so it is all but impossible to do this, but you have to at least put it out of your mind while looking at the various forecasts, both aviation-specific and more general.

When planning a flight, it all starts a few days beforehand. The general, non-aviation forecasts from the likes of the Met Office are pretty good at giving you a general idea as to where the wind will be coming from throughout the forecast period. This is, of course, vital because the main stopper will be if the wind goes beyond crosswind limitations, either your aircraft's, your company's or your own personal limitations. Wind, provided it's mostly aligned with the runway you're planning to operate from, isn't usually a problem for aviation. Fog, mist, low cloud and just plain old poor visibility are much more likely to cause a flight to be delayed or cancelled.

Luckily, I only had one flight booked in during Storm Eunice which was a departure from the south of the UK to somewhere much less windy in the Swiss Alps. The initial forecasts were suggesting that the wind would be from the west before backing to be from the south as the storm passed over the UK. With that in mind I advised our clients that provided this proved to be the case, we should be OK to depart the UK. Another bonus was that the strongest winds

weren't due to come in until it started to back from the south.


As we got closer to Friday's departure date, the forecasts firmed up and I was able to start looking at the TAFs for the southern UK airports. It's always interesting looking at TAFs that read more like a novel than a single line of text, but picking through them I could see that provided we departed the UK before late morning, we should be fine with the gusting 50kt blowing almost straight down the runway. While that was not going to make for the most comfortable of departures, it would be safe and well within both the aircraft and my limitations.

With strong, gusty winds it's always worse closest to the ground and under the clouds. Provided there's no large shift in wind speed or direction as you ascend, it should be smooth once above the cloud layers though. It's always a fine line to inform passengers of the weather, yet not frighten them. As pilots we're used to turbulence, but I find even frequent non-pilot flyers get nervous about it and want to know 'how bad will it be?'. The idea of light to moderate turbulence can feel extreme to ordinary people, so when briefing passengers

“With gusty winds it's worse closest to the ground – and under the clouds”

you have to err on the side of 'it'll be worse than you think'.

It's always satisfying when the briefing you give to passengers regarding a flight turns out to be exactly as you said it would be – and as expected it was fairly bumpy for the first few minutes of the flight during Storm Eunice, but once we got a couple of thousand feet up and pushed through the first cloud layer all was well. Once on top, the forecast tailwinds made the flight very quick all the way to the Alps.

I'll finish off this month's column with an announcement. I've been doing these columns for seven-and-a-half years now and I feel it's time for me to sign off. It's been amazing to share with you my flying adventures from the jungles of Indonesia into the corporate world of flying the PC-12 around Europe. But fear not! I'm not hanging up my keyboard just yet and will be focusing on finishing the book I've written about my time flying in Indonesia. As yet, I haven't a deadline as to when it'll be published, but very soon I hope, and I will let Dave know when it's ready to share with you, the *FLYER* reader. Until then, happy landings... (Oh, by the way, go and fly a Cub if you haven't already!) 

Currently dividing his time between a Super Cub and a Pilatus PC-12
matt.dearden@seager.aero

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Full Throttle

MARK HALES

Just staying alive...

Fate is ever the unreliable bedfellow, so as the first flight of my diesel creeps ever closer, now might not be the best time to mention I've only suffered three engine failures, thus far... One was in a twin which didn't really fly on one (landed downwind but didn't break the aeroplane), another where I experienced such an horrendous misfire and decided a large field was the best option, and another where I finished upside down in a potato field. Thought I'd pulled off a dead stick greaser... until the nosewheel sank into the soft earth.

On the other hand, given that I'm about to embark upon a test programme of an untried engine, thinking about such things is probably good preparation. When the popping and banging started, I had been loath to touch the mag switch for my Moth Minor's smaller Gipsy, just in case it disturbed something and the fusillade turned to silence. At least the engine was still producing some power and that certainly stretched the glide until a suitable field appeared. It was only when safe on terra firma that turning the mag switch to 'one' made the engine run smoothly. The Minor has a double magneto in one casing and turning off one set of windings obviously stopped the scatter within. A flick of a switch decided whether I was too cautious and could have flown home on one, or sensible because I chose a field when I found one. The other was in a Cessna 182.

I was scud-running at about 900ft on a grey January day when the Continental coughed, then stopped. I pulled the carb heat, swapped the fuel tanks, and looked for a suitable field among a forest of pylons. About 50ft up, and lined up with what seemed like the only option, the engine started. If it stopped again, I'd lose the landing option and at 50ft, any control of the situation. I switched off the mags... If it had been carb ice though, I could just have flown away, feeling lucky. And if I hadn't started at 900ft, I'd have seen the large, firm stubble field on the other side of the plot... If you've never had a real engine failure, I can tell you it's not like in your training. There is absolutely no time, and an aeroplane which seems to glide so nicely with the throttle pulled back, comes down like a brick.

So, would I change anything with the benefit of hindsight? My sensible head says maybe the Gipsy's mag switch, but at 50ft in the Cessna, probably not. At 500ft, then possibly, but I'd need to remember that the penalty would remain the same and I did walk away from both incidents. It's all part of


the reason why accident reports make compelling reading, and the fact that most of us can relate to the ingredients which brought about a worse situation.

But, what of those reports where a genius pilot made the right decision in the most difficult circumstances... There are many, but I have a couple of favourites. The first is courtesy of Alex Henshaw, author, record setter, test pilot, a man possessed of flying skills that most of us can only dream about. One of his wartime jobs was to test fly the Spitfires that rolled off the Castle Bromwich production line (he flew some 2,500 in all, plus about 300 Lancasters), and a job he insisted on doing whatever the weather, with absolutely no guarantee all would go to plan. Henshaw lost many of his fellow testers to accidents rather than the Luftwaffe and it's only when you read his book *Sigh for a Merlin* you see how many of the damn things blew up while he was sitting behind them. And when they did, there was no radar, no ILS or VORs, not even an NDB (remember them?). Instead, the

“The pilot opened the canopy, undid his belts, and leant forward over the nose”

column of steam from Hams Hall power station, which always made a hump in the clag cloaking a winter's day, had to serve as an impromptu marker for countless dead stick approaches. Any of them is a compelling account. If you haven't read *Sigh for a Merlin*, you should.

The second is an unnamed amateur aviator. He was flying a Rutan Canard – probably a Long-Eze, or maybe a three/four seat Cozy – when for whatever reason, the aircraft entered a deep stall. This is a condition peculiar to canard aircraft and it happens when the main wing stalls, and the front one (the canard) doesn't have enough authority to lower the nose and unstall it. It's why the CofG is critical in a canard layout. The aircraft was level, but going down at about 500fpm, a rate which promised a very bad ending. The pilot opened the canopy, undid his belts, and leant forward over the nose. That moved the CofG forward, the nose came down, the main wing unstalled and he flew on, I'm guessing to a cold beer, or maybe two. Followed – I'm also guessing – by some attention to the weight and balance of his aeroplane.

Amateur he might well have been, but more than smart enough to stay alive. The more of this stuff I read, the better prepared I feel... 

Working vintage aircraft and cars make Mark particularly happy
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Squawks

IAN SEAGER

Time for a change?

I'm going to have to write this quietly, I don't want to hurt my aeroplane's feelings, particularly as we still have plans for some adventures. And anyway, I haven't fully made up my mind. Probably.

The thing is, I've owned the Cessna 182 for 22 years now and we've been through a lot together. The start of our relationship may have been a bit bumpy. There was that feeling of betrayal caused by some truly astounding early maintenance bills that, in retrospect, had more to do with my ignorance and a (now defunct) maintenance organisation unfamiliar with the aeroplane than perhaps any serious defects. We survived that painful episode, and have since shared amazing flights that have taken us as far west as Oshkosh, as far east as Moscow (boo), as far south as Tunisia and as far north as Svalbard. But times change.

I suppose it was the DfT's move against the N reg and people holding FAA Instrument Ratings that got me thinking.

A UK Instrument Rating will probably end up costing me £1,000, plus whatever training I need to do. To make use of it I'll need to continue to spend a few hundred pounds a year on keeping the GPS database updated every 28 days, and then a few hundred more for a subscription to Jepp plates, and another few hundred on renewing the rating every year plus several hundred more on practice approaches.

It all adds up, and when I look through my logbook at the IFR flights I've taken, there are not that many that are essential 'must get there or get back' these days, and frankly for those that are, I've more often than not ended up flying commercial (have you seen how much you get fleeced by some of the bigger IFR equipped airports for their landing and handling fees?).

Sadly, when I divide the cost by the number of IFR hours flown in the system the result is hard to justify for the utility that it gives me personally, not to mention the fact that some of my most enjoyable General Aviation experiences have resulted from my pre-IR unplanned diversions and delays, all full of friends at airfields, stays in hotels and meals in restaurants in towns that I hadn't previously heard of. I'll complete my UK IR, it's a box that needs ticking apart from anything else, but in the UK and Europe at least, I've decided that I prefer VFR touring.

But it's not just an IFR/VFR thing. The Cessna 182 is an awesomely versatile aeroplane. At home (if a bit slow) at FL100 in the airways, enough wing, power and envelope to carry lots of people, fuel and luggage and happy to fly in and out of strips like Lundy (although not with all of the people and fuel!). It does that because of a great wing, great flaps and a honking 7.7 litre 0-470U up front that drinks its way through 42 litres

of avgas an hour at economy settings. If you're three up that's not too bad, but a surprising amount of my flying is done either alone or with one other seat filled. That's a lot of unused aeroplane being hauled around, and with fuel edging over £2 litre now...

So what might be next? Well, with the caveat that I'm not sure if this is a 22-year itch or something more permanent, I decided to draw up a set of requirements, more to distil my thoughts than to create a shopping list. The times I need to fill more than two seats are infrequent, so I think I'd be happy with having just two. I'm a big fan of European touring, so those two seats would have to be comfortable and there's have to be enough room in the cabin to make three-hour legs comfortable. You can cram pretty much anything into the 182 and take off without worrying (no, not really, but it's much better than most in that regard), and while that's never going to be an option in a lighter two-seater, I will want enough load capacity for a week away.


When not touring, I like a bit of local flight seeing and dropping in on friends with strips. It doesn't need to be super STOL, but happy in and out of say 350 or 400m would be

“I'm not sure if this is a 22-year itch or something more permanent...”

ideal, and while I'm drawing up the list of ideal requirements, something that can run tundra tyres in the winter and normal size tyres in the summer would be a bonus. Then there's the engine, and here I'm finding myself drawn to the frugal fuel-injected version of the Rotax 912. The 912 is a great engine and the fuel injected version, the 912iS just seems to sit there sipping fuel all day long.

I don't yet know if anything fits the bill exactly. The new 600kg microlight category should meet most of my wishes, including that of getting away as far as possible from the complex and evolving regulation of GA.

This year's trip to AERO in Friedrichshafen should provide halls and halls of potential suitors, some of which might even make it to the UK...

But as I mentioned earlier, there are still a couple of adventures that need the 182's help to tick off. So if you see her out and about, please don't mention this column, I'd hate to upset her for nothing... 

Publisher, pre C-19 often found flying something new and interesting
ics@seager.aero



The world of 600kg microlights has arrived, and if the SportStar is anything to go by, we're in for a real treat



FLIGHT TEST | SportSTAR SW

A Star in the sky...

Minimum cost, maximum fun... the SportStar from Evektor is one of the first approved 600kg Light Sport Microlights

WORDS IAN SEAGER. PHOTOGRAPHY ED HICKS

Aviation is no stranger to compromise. You can go faster, but you'll have to burn more. You can have a super STOL machine, but chances are your cruise will be a bit on the (very) slow side. You can have fully certified de-icing and a comfortable fast cruise, but you'd better not operate from short, soft grass strips. Then there's the widespread perma compromise of weight, where you get to juggle fuel quantity, luggage, passenger mass and your own all-day-breakfast quota with range, endurance, regulation and the laws of physics (which always trump all others).

While the laws of physics don't change, aviation regulation does, and the new 600kg microlight category has the potential to minimise cost and hassle, while maximising fun. There are still some compromises, so if your type of aviation is anything other than day VFR or needs more than two seats, it might not work for you. But I'm increasingly attracted by the low direct operating costs and light regulatory burden that the 600kg category promises, so jumped at the chance to fly the SportStar SLM 600, one of the first 600kg microlights to be approved in the UK.

As much as I love aeroplanes and General

Aviation, my joy comes from the act of flying and the magic carpet experience it provides, rather than a deep knowledge of how any particular model of aeroplane evolves. That's why, to my eyes at least, the SportStar SLM looks pretty much like an Evektor EV97 that's been connected to a high pressure air line and inflated a bit. Roger Cornwell, the UK agent, politely pointed out that while it was certainly shaped by the EV97's DNA, lots had been changed, and plenty of it was new and different from its often bare-metal smaller sibling.

Internally the wings (which retain the 8.1m span of the EV97 Eurostar) have been re-designed to include a 60 litre fuel tank per side. In addition to the bladder-busting endurance that gives, it also creates space behind the seats for a generous baggage area (the weight limit for that is 25kg, so maybe don't carry around all of the usual crap stuff that aircraft tend to accumulate). I'm sure that Roger will happily run through all of the other detail changes, but if you think sturdier, strengthened and with a LARGE and optically lovely canopy, you won't be far wrong.

Engine wise, future SportStar owners can choose between the Rotax 912ULS, the turbo charged 914UL or the fuel injected 912iS as fitted to this aeroplane. Although the injected engine will raise the price by a few thousand or so over the carb'ed



Above It may look like an over inflated EV97, but there's lots that's new and tougher
Left UK agent Roger Cornwell told *FLYER* that he plans to manufacture up to six SportStars a year
Below It's a great looking aircraft, which for many will hit the sweet spot

engine, the injection system does a great job of delivering smooth power with frugal fuel flow.

Getting in is pretty easy, one big step onto the wing (future builds will have a fuselage mounted step) and then step into the aircraft. Unlike quite a few lighter aircraft, the SportStar has plenty of places for you to put your hand and support your weight without fear of damage. I guess it would be technically easier to sit on the seat first, but we were in a muddy field and the aeroplane was soon to be delivered to its new owner... Stepping from the wing straight onto the floor was not difficult.

Selection of switches...

Inside you're presented with a modern carbon fibre panel fitted with a Dyson Skyview, an iPad running SkyDemon and the usual selection of electrical switches, including those that drive the two-lane fuel injection system. Presumably to satisfy a regulation somewhere, there's a traditional instrument cluster providing you with airspeed, altitude, a compass and a slip ball – think of it as the aeroplane's very own 'museum quarter'. Fuel tanks are switched via a centrally mounted Andair piece of anodised beauty, and both sets of (adjustable) rudder pedals have toe brakes fitted. Between the seats there's a handbrake-style lever that works the three stage, three-quarter span split flaps. This is my least favourite feature of the aircraft, I found it difficult to use, and think electrically driven flaps would be better while also freeing up a bit of space between the seats. The things you will use most, i.e. the sticks and the throttle, both feel great. The elevator and aileron trim control are operated by stick-mounted buttons





and the throttle plunger (meatier than my Cessna) has a good friction lock to take care of that Rotax spring (if you haven't flown behind a Rotax, the throttle is sprung so that any cable failure results in full power being delivered).

We started the engine, ran through the checks (mainly making sure that both fuel injection lines are working) and headed for the runway. Although firm, the surface was slippery and the Cessna had embarrassed itself by leaving a selection of skid marks where a wheel had locked when manoeuvring to

Top Simple panel dominated by the Dynon and chunky central throttle. Changes and additions at the build stage are entirely possible

Above left Huge canopy and optically great. I imagine in summer that shade and vents are crucial

Above right Spacious cockpit finished nicely, there's plenty of room for the 25kg of luggage under the netting behind the seat

Right I'd prefer a four-way hat-style trimmer on the top of the stick



park. The SportStar and its steerable nose wheel left no such trace and was joyfully easy to taxi.

Empty the aeroplane weighs 320kg, so with Roger, me and a good couple of hours' worth of fuel on board we were maybe 40kg under MAUW. For my first take off in type, runway permitting, I tend to advance the throttle pretty slowly.

With the first stage of flap set I rotated a bit later than was strictly necessary (close to 50kt) but we used just under half of the 650m available.

Rate of climb was pushing 1,000fpm, and as you would expect the visibility was superb. In search of smoother air we climbed on top of a scattered cloud

base (somewhere north of 5,000ft for the most part) to get a feel for the aeroplane.

The stick mounted elevator trim had a relatively fast motor – when flying something similar a few years ago I had managed to confuse the down trim with the PTT, and while talking to Lyneham (that's a clue to how long ago it was) found myself wondering why the aeroplane was so nose heavy. Making the same mistake in the SportStar would get your attention pretty quickly. The aileron trim either had a slower motor or a less effective trim tab, either way, with two on board but with a bit of fuel imbalance, it was hardly needed. Personally I'd be tempted to replace the four individual buttons with a four-way hat-style trim switch.

Control forces are nicely weighted, and once trimmed the aeroplane's really easy to fly with just a couple of fingers and the lightest of touches on the rudder (purists look away now) – in fact, you won't embarrass yourself if you forget the rudder completely when flying normally. Playing in the sky it's quickly obvious that the SportStar feels like a pretty solid yet sporty machine. There's no oil-canning of the skins, no noisy drafts, no weird vibrations, just good solid safe, yet entertaining handling... a real joy.

Take ownership...

If you're a microlight pilot then none of this will come as a surprise, but if you've spent much of your flying career in certified or even LAA permit aeroplanes there are some differences that might surprise you. The first of these is not just that a lot of the maintenance can be completed by the owner, but that inspection of those works doesn't usually have to be done by a BMAA inspector, but can be completed by a responsible person such as another licensed pilot.

To those of us with certified aircraft experience this can come as a bit of a shock. In the certified (and LAA Permit) world there is a prescribed list of maintenance that an owner can undertake. In the BMAA world, all maintenance is considered to be permissible 'pilot maintenance' unless specifically called out in the Pilot's Operating Handbook (POH) or Aircraft Maintenance Manual (AMM), which will clearly state where specific qualifications or equipment are required. There may be no problem with you, as the owner, carrying out a 100 hour inspection, but it's (understandably) not going to be within the scope of owner maintenance for you to service or replace the explosive charge in a BRS device! For

quite a few tasks the owner can sign the maintenance log, but if any activity had disturbed a major structure a duplicate inspection by a competent person is necessary (see above).

There are times when a BMAA inspector or aircraft manufacturer will have to be involved. Although a microlight will have a non-expiring Permit to Fly certificate, to be valid it has to have an annual certificate of validity which is issued by the BMAA following an application by the owner, an inspection by a BMAA inspector and a check flight.

Any minor modifications also have to be signed off by both the owner and a BMAA inspector.

There's no obligation to actually do the work yourself, and many people pay individuals or companies to work on their aircraft, but even then it's very much BMAA ethos that the owner is ultimately responsible.



Economics of flying

I recently paid a penny less than £2 for a litre of avgas, and with the C182 burning 42 lph when loafing along at economy power settings, that's a chunky amount of change, particularly if you're up on your own for a bit of random flight-seeing. I have a theory about the economics of flying and direct operating costs (DOCs). Essentially the best type of aircraft to own is the one that allows you to go flying more or less when you feel like it without worrying unduly about the DOCs. That way you fly more often, stay more current and are likely to end up having much more fun. The opposite experience might be something like owning a fast complex twin that costs over £1,000 to fill up, and north of £250 an hour just in fuel. The result is you fly fewer hours, get less current, maybe suffer from reduced mental capacity, and as a result each flight has the potential to be far more stressful and undoubtedly less safe.

Working out the fuel burn and resulting cruise speeds, and looking at those for the types of flights that you most often take is interesting. I pulled the power back on the SportStar and trimmed for about 80kt, this would be a local flight-seeing or loitering mode. Think 'nowhere to be with lots of things to see'. At this speed the aircraft is quiet inside and out (the engine is turning at about 4,400rpm) and the



Above Once trimmed it's easy to fly the SportStar with a couple of fingers on the stick

Right Engine of choice has to be (for me at least) the Rotax 912iS, here driving the Duc prop

Below Rudder trim is a fixed tab, but elevator and ailerons have electric trim

Left With 60 litres a side in wet wings the aeroplane has a massive endurance. Not always necessary, but handy if you are heading somewhere with no easy access to fuel





Above Split flaps add drag, but not a great deal of lift. 1G stall speed is only 4kt slower with full flap rather than clean

Below Electric aileron trim makes flying one much more relaxed

Left It's a great flight-seeing aeroplane with handling that's stable enough for long distance touring, yet entertaining enough for some cloud surfing

handling's still rock solid and pleasant. The engine's only burning 12 lph, so even if you only half filled the tanks you'd still have four hours endurance with an hour to spare.

If you need to get somewhere in a hurry then the SportStar will canter along at about 100kt. As you can imagine this is going to take quite a bit more power and the resulting higher rpm (it's a three blade fixed-pitch Duc prop) does generate more noise (although not uncomfortably so). It also burns more fuel, and although I only saw 16 lph on the screen, I think I'd want to plan for 18 lph just to give me that warm comfortable feeling of plenty of fuel in the tank (options are always good and fuel almost always buys you options). Even taking the high fuel burn you've still got about six hours plus reserves if you top off the tanks.

It would be a shame to waste all of the altitude we had without taking a look at the stalling characteristics, so slowing down we start clean and work our way through the stages of flap. I've been trying to think of a different way to say it's all fairly benign with plenty of warning but I can't, so all of your plain vanilla stalls result in something entirely predictable and hassle free, unless of course you happen to be close to the ground, which will result in an awful day whatever you're flying. With full flap the POH says it'll stall at 39kt and clean at 43kt and that, within a knot, correlates to what we saw. Altitudes of 5,000ft+ are probably not the SportStar's natural habitat, at least not in the UK where you don't have to go too far before banging your head into a bit of controlled airspace. With time and fuel to spare I pointed us in the direction of some familiar scenery and began a descent to something nearer 1,000ft agl. The aeroplane's Vne is 146kt, so there's a very comfortable margin between high speed cruise and bits bending or worse. The SportStar isn't the draggiest airframe arounds, but nor is it slippery enough for speed control in a cruise



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Above You see what I mean? It does look like someone's over-inflated an EV97

descent to be a problem. Down at about 1,500ft, set the low loitering power and enjoy some great views of the Wiltshire countryside, all the while whispering along with, I suspect, barely a noticeable engine note for those on the ground to listen to or complain about.


Just like my slow application of power for a first take-off in type, I usually set up for a longish final for the first landing. Speed control was easy, there was a little crosswind, but the SportStar made easy work of that too. Before long I was bringing the speed back over the mythical hedge to about 55kt for an uneventful landing and taxi to parking and coffee.

Little belter...

What a bloody great aircraft, what a great set of compromises. STOL enough to get in and out of pretty much every strip in the UK, fast enough to fit in pretty much any airport circuit. Comfortable enough for long flights, involving enough to ensure that no flight becomes dull and low enough DOCs to be able to fly more or less whenever you want.

I would make a couple of changes (and the regs allow Roger to do this). As I mentioned earlier, I'd have a hat-style trimmer on the sticks. I'd have slightly beefier electrical switches and for those long touring flights and I'd have a basic autopilot, but that's about it.

Equipped as flown the SportStar will cost in the region of £125,000, and that's a lot of anyone's money, but compare it with the rising cost of used certified aeroplanes, the fuel consumption you get from a traditional aero engine and the fact that this would make an ideal group aircraft shared between three or four and it makes a lot of sense.

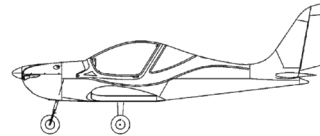
The 600kg category took a bit longer to become reality than most had hoped for, but now that new types are beginning to arrive, I think we have a very exciting future on our hands. Or should that be wings? 



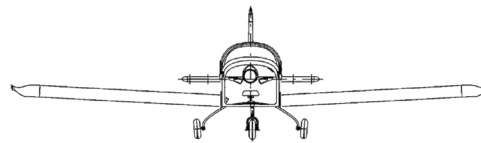
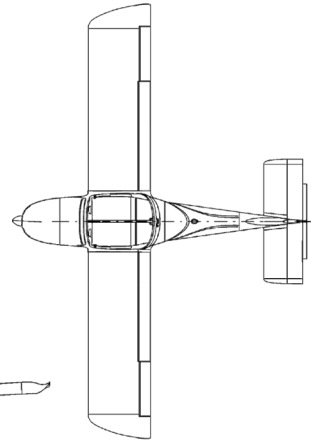
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Seats Two
Max take-off 600kg
Empty 320kg
Payload 280kg

Dimensions

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Spec

Airframe Aluminium
Engine Rotax 912S
Max power 100hp

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Evektor
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Contact

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Price

Aircraft approx £125,000



Above At £125,000 it isn't cheap, but what a great machine for a small group

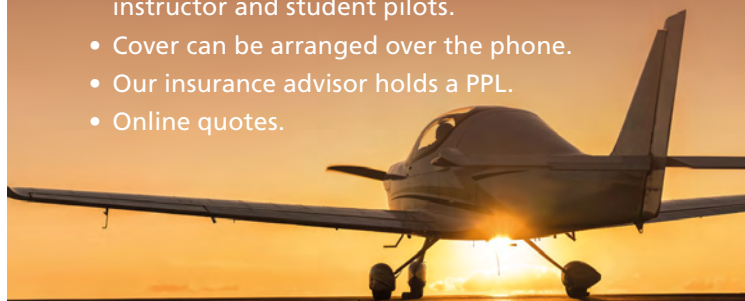
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My First Solo

Dan Griffith

After his first ever flight, Dan Griffith felt scared, ill and airsick...

Words by **Yayeri van Baarsen**



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How did you get into aviation?

From the age of 11, the only thing I wanted was to get into aviation. However, I couldn't afford the civilian way and didn't get a scholarship.

At 18, I joined the RAF University Air Cadet Scheme. On my first flight, the pilot did a 'run and break', which left me feeling extremely ill, pretty airsick and quite scared. "I'm going to die!" Followed by, "Oh no, I've signed up for 20 years of this..."

How did your flight training go?

Once I got over that first flight, it went very well. Flying came reasonably natural – I had thought of nothing else for many years, so mentally there was no other option. University Air Squadron was very similar to proper military training: clinical, syllabus-orientated, and disciplined. This was great, as it set me up for a future in test flying, where you also need a disciplined approach.

Tell us about your first solos?

My first ever solo wasn't a big surprise, it seemed like a natural progression.

My second, in the Jet Provost, was such a shock. After a 55-minute flight the instructor said, "Park over there." Then got out. I assumed I'd messed up, so when he told me to solo, I just sat there in utter disbelief. My third solo, in a single-seat Harrier, was extreme. After

only two trips in the two-seat Harrier, I was alone in this powerful war machine which is 2,500lb lighter and had incredible thrust. I remember sitting at the end of the runway, wondering what's wrong with the aeroplane as it was rocking with raw power – it went off like a scalded cat! The undercarriage limit was 250kt, but the power was so phenomenal, you got to that in an instant. I eventually got the speed under control at 12,000ft...

You've flown everything from Harriers to A380 to helicopters to homebuilt. How do you switch from one type to another?

In test pilot training you're formally taught to get in and out of different aircraft and feel comfortable enough to fly them safely.

I went to USAF Edwards, where each week it brought in a new aircraft, like the C-5 Galaxy, F15, A10. For every aircraft I'd fly, I'd write a kneeboard with essential information, such as key speeds, limitations, approach speed, etc. I'd write these boards in a set format, so I knew exactly where to look.

These kneeboards act like a memory chip in my brain, unlocking my flying skills for that type. It's also a question of experience, once you've flown a lot of aircraft, you'll notice all medium jets fly

very similarly, etc. The exposure I've acquired through my extreme flying allows me to switch between aircraft types relatively easily.

What advice would you give someone about to fly their homebuilt aircraft for the first time?

The biggest issue in the LAA world is the engine, so do proper engine tests beforehand. Tie it down and see if it lasts for a few minutes at full power, paying special attention to heating and oil pressure. Also, think about what you'll do in case of an engine failure. Search Google Earth for possible landing areas at the end of the runway. Consider what speed you'll fly and how much input it'll take to go from climbing to landing.

Many people want to turn around and land at the runway if the engine fails, so they won't crash the aircraft they've spent 10 years building. This often goes wrong. It's better to land straight away – you might damage the aircraft, but you'll hopefully walk away.

Most important is to consider all the 'what ifs' – what if this goes wrong? Assume it will and plan accordingly. If it doesn't that's great, but if it does, at least you've got a plan.

What does flying mean to you?

For me, flying is immersion. The type of flying I do is extreme, technical, and skilled. I enjoy the challenge of variability, testing 60 different aircraft types a year and wanting to be good at it. In fact, flying is the only thing in life I absolutely give 100%.

• Follow Dan on [Instagram](#) for flight testing and advice. 

“Kneeboards act like a memory chip in my brain, unlocking my flying skills”



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Technical

What is this new breed of 600kg Light Sport Microlights?
We look at the aircraft that may be coming to the UK (or not...)

600kg microlights

There's a revolution coming to light aviation and it's known as the Light Sport Microlight. Yes, the new category of microlights with a max weight of 600kg brings the possibility of factory-built aircraft at reasonable prices (well, some anyway) with much lower operating costs and simpler operation than most certified aircraft. We understand the CAA is about to

release for consultation the revised British Civil Airworthiness Requirements (BCAR) Section S Issue 8, which will give the detail on the new category, but the BMAA has been able to clear some existing aircraft, with others in the pipeline. However, it's not transparent, for now, which of all the hotships we've been seeing at shows such as AERO Friedrichshafen over the years will eventually come to the UK. This list is our best guess on what will... and what's unlikely.

Alpi P300

Italian company Alpi has just had its first 600kg microlight approved in Italy, the Pioneer 300. Alpi combines wood with composite materials for the airframe with features such as retractable undercarriage. In the UK, Alpi aircraft are available as kits and can be fitted with Rotax engines from 100hp to 141hp with your choice of avionics. UK agent is Cavendish Aviation at Earls Colne Airfield

Cruise 135kt **Price** From £60,100



Bristell NG5

Czech manufacturer Bristell has a range of low-wing and high-wing aircraft, renowned for their solid construction, wide cockpits and safe handling, with a choice of Rotax engines and fixed or retractable gear. In the UK though, only the NG5 Speedwing is currently available as a kit, though the UK agent says this may change in the future

Cruise 115kt **From** £42k





EuroFox

The Slovakian made Aeropro Eurofox is one of the first factory-built Light Sport Microlights to be approved with a max

weight of 560kg, and is proving highly popular with private owners, and also with gliding clubs which use it as a tow

tug for launching gliders. No longer available in kit form.

Cruise 92kt **Price** From £72k



Skyranger Nynja LS

The bestselling Skyranger is also one of the early BMAA approved LSMs, with the latest Nynja LS cleared for 600kg max

weight given an incredible 300kg payload. The Nynja is similar to the Swift but has a smooth composite skin on the

fuselage covering a steel tube frame. Built in the UK by Flightlight at Sywell.

Cruise 88kt **Price** From £51,600



Foxbat A32 Vixen

The Foxbat A32 Vixen is a development of the original A22 (which is still available) with a smoother fuselage

design and slightly shorter wing span to give a faster speed without harming the aircraft's impressive short take-off and

landing performance. Only available as a well-engineered kit.

Cruise 115kt **Price** £90k

Flight Design CTLS

The 600kg microlight version of the popular Flight Design CT is based on the Light Sport Aircraft (LSA) with the same high spec as the Sport Edition, updated in 2020. Last year, a more powerful version with the turbocharged 115hp Rotax 914 was introduced. UK agent Airmasters is expecting to bring in factory-built aircraft.

Cruise 115kt **Price** From £105k



Ikarus C42C

A thorough reworking on the ever-popular Ikarus C42 with new wing shape and shorter wings, and stronger airframe, has resulted in the C42C being cleared with a max weight of 560kg. Payload is now a whopping 281kg. Standard engine is a 80hp Rotax but the 100hp 912iS and 914T can also be fitted. The C42C is available from TLAC.

Cruise 84kt **Price** From £72k



Pipistrel Velis

Pipistrel UK agent Fly About Aviation is waiting for the final BCAR Section S to be approved by the CAA before announcing the final spec of Pipistrel's entry into the LSMs. It will be based on the Velis Club, which is itself based on the certified VSW121, so a proven airframe with the proven Rotax engine choices.

Cruise 132kt **Price** n/a



Sting TL-2000

The Sting has been a good-seller for TL Sting, the UK agent for Czech company TL Ultralights, but mostly as a kitplane. Now TL Sting is concentrating on factory-built aircraft and the carbon-fibre Sting TL-2000 offers comfortable fast touring and still able to operate from grass strips. There's also the high-wing Sirius available.

Cruise 120kt **Price** From £114k



TL Stream

For a fighter-like experience, the TL Stream offers two seats in tandem configuration and sparkling performance. Construction is carbon fibre with Kevlar shielding in the passenger cell. The Stream's speed range is from stall at 35kt to a Vne of 181kt. Features include retractable gear, leather seats and Garmin G3X Touch avionics.

Cruise 135kt **Price** From £217k



Tecnam P92 Echo

Tecnam's P92 Echo has been around since the early 1990s with more than 1,000 delivered worldwide but, like much of the Italian company's range, recently had a thorough reworking. The MkII has a roomier cockpit with wider seats, more streamlined and modern appearance, more performance, latest Garmin avionics and BRS, plus, of course, it's from a major manufacturer.

Cruise 115kt **Estimate** £160k



Dream on...

Will these 600kg microlight make it to the UK?

Blackshape

The Italian Blackshape Prime has wowed crowds at shows such as AERO Friedrichshafen with its sensational design that just yells 'speed'. Two seats in tandem configuration give optimum handling and speed, plus it's also limited to +4/-2 g and strip capable. Like to fly one? Try [Air Combat Europe](#).

Cruise 148kt **Price** From £161k



Breezer B400-6

Unlike many of the hotship 600kg microlights, the German Breezer is constructed from sheet aluminium rather than composite and offers a sturdy two-seater. The B400-6 is very similar to the EASA type certified B600, with shorter wings and other weight saving measures to come in at 275kg empty.

Cruise 108kt **Price** n/a



Funk FK-9

German company Funk Aircraft has a range of light aircraft including the Bucker-Funk BF131 Jungmann replica and retro-styled BF139. However, its contender in the 600kg microlight class will be the long-running FK-9 high-wing now on its MkVI version. Comfortable and beautifully finished, unlikely to come to the UK

Cruise 105kt **Price** n/a



JMB VL3

There's a spat going on between Belgian company JMB and Italian company Risen as to which has the fastest 600kg microlight, but one thing's for sure, the VL3 is fast no matter which Rotax engine you choose - 100, 115 or 141hp. Short strip capable, the VL3 has a claimed max speed of almost 200kt and a climb rate of 2,000fpm.

Cruise 140kt **Price** From £152k



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JunkersA50

Dieter Morszeck, the man behind the Junkers F13 replica, is at it again with the Junkers Junior A50, based on an open-cockpit 1930s design. It looks delightful and is beautifully engineered and constructed. It is powered by a modern Rotax 912iS, has modern Garmin avionics, BRS, and is due to go on sale in April 2022. We'll take two, bitte.

Cruise 100kt **Price** £151k



Remos GXiS

Remos has had a chequered history but now looks to be settled with its new owner since June 2020, Stemme, the motor glider manufacturer. The GXiS is the current model, based on the long-running GX model, now powered by a Rotax 912iS and certified in the 600kg category in Germany.

Cruise 100kt **Price** (est) £155k



Risen 915iS

For Alberto Porto, designer of the Risen 915iS SuperVeloce, it's all about speed – and his aircraft is officially the fastest microlight with an FAI record of 400km/h – an astonishing 216kt. But it's also a roomy aircraft with all mod cons, including Dynon glass cockpit, BRS, retractable gear. The Superveloce has shorter wings than other models.

Cruise 181kt **Range** 702nm



Shark UL

Now famous as the microlight that Zara Rutherford flew around the world, the Shark UL is a high performance aircraft with two seats in tandem, retractable gear, composite airframe, and achieving excellent performance on a standard Rotax 912ULS. Empty weight is from 295 to 325kg depending on options, with a max cruise speed of 162kt though the optimum is lower.

Cruise 135kt **Price** (est) £138k



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FAQ on 600kg

Experts from the British Microlight Aircraft Association (BMAA) answer 20 questions on the new 600kg Light Sport Microlight category

1 What exactly is allowed in the new 600kg Light Sport Microlight category?

Max weight: The clue is in the name 600kg MAUW. For a typical Rotax 912 powered two-seat aircraft the maximum empty weight is around 380kg with minimum equipment for operation at 600kg.

Max weight of pilot or passenger: The minimum pilot or passenger weight for calculating empty weight etc within the regulations is now 100kg per seat. If the manufacturer wants to design for higher then he can and there is no limit, i.e. Skyranger is designed for 120kg per seat. However although the seat load may be higher you may still need to trade cockpit load for fuel to keep within the AUV in exactly the same way you do for any aircraft, not just microlights.

Minimum weight: No minimum empty weight limit, but if single seat and it meets the SSDR definition – both weight (300kg AUV) and stall speed limits (35kt) – it cannot be issued with a Permit to Fly.

Max speed: No max speed limit, this is unchanged from previous microlight requirements.

Stall speed: V_{so} 45kt at max all up weight. This is listed in the definition.

Engine: Airworthiness codes are written for reciprocal engines including turbocharged and supercharged. For turbine engines BCAR Section S says consult with the CAA. Electric is also an option however the airworthiness requirements for this option are still very much work-in-progress. There is no limit to the number of engines that can be fitted. This is unchanged from previous microlight requirements.

Propeller: No limit on type and can be fixed, ground adjustable or in-flight adjustable. This is unchanged from previous microlight requirements.

Undercarriage: Fixed or retracting,

or floats. This is unchanged from previous microlight requirements.

2 Can an existing 450kg microlight be flown with a 600kg max weight?

Only if the design has been approved at the higher weight as a microlight and it is listed on the TADS for the type. See below.

3 Can an existing 450kg microlight be recertified with 600kg max weight?

The design needs to be approved against BCAR Section S issue 8 (due to go to public consultation) or can be approved against CS-LSA or CS-VLA but with due consideration given to the 100kg minimum occupant weights.

4 Can I take an old Permit or Certified aircraft which meets the criteria and operate it as a 600kg microlight?

No. Certified aircraft cannot be re-approved as a microlight aircraft – see CAA document CAP2163 for details. Old Permit aircraft could be transitioned up to microlight status provided they have demonstrated compliance with the requirements. Note that a number of older Permit aircraft were not approved to a recognised design code and therefore it is not possible to satisfy this without a lot of extra work, also the original design date may no longer be available.

5 Can I buy one of the hotship 600kg microlights I've seen available in Germany or Italy, for example, and bring it to the UK to fly?

Not unless the type has been UK approved, and for factory manufactured aircraft the manufacturer needs to have UK CAA Approval. Note that there is no

automatic approval between European countries and there has never been, so each country has its own set of rules. Each manufacturer usually ends up manufacturing country specific aircraft.

6 Do the changes apply to both fixed-wing and flexwing aircraft?

Yes, they apply equally to both types and a new flexwing has just been approved at 499kg.

7 Will 600kg helicopters be available?

Microlights are defined such that they do not include helicopters due to the stall speed requirements in the definition.

8 What aircraft are now approved in the 600kg category?

Technically 600kg encompasses all microlight aircraft and does not have a lower limit so all existing microlight aircraft should be included.

Types that have taken advantage of the new definition and have been approved at higher weights are as follows: Skyranger Nynja (600kg AUV), Eurofox (560kg AUV), Exodus DeltaJet 500 Stingray (499kg) and Sportstar SLM (600kg AUV).

9 What is expected to be approved over the next couple of years?

There are several other manufacturers who are keen to bring aircraft to the UK... but do not wish to be identified for the moment.

10 I have an NPPL with a microlight rating. Can I fly the new aircraft?

Yes. They are microlights and you can fly them using your microlight licence. You may need differences training, however. The BMAA has produced a guide to differences training, available



See many of the 600kg aircraft at the Microlight Trader Fair at Popham on 30 April-1 May

on the BMAA website. It's Technical Information Leaflet (TIL) 078.

11 I have a PPL(A) with an SEP rating. Can I fly the new aircraft?
You need to have a microlight rating in order to be able to fly microlights – and with good reason. Many pilots who have only flown heavier aircraft have been caught out by the different handling characteristics.

12 What medical do I need?
Microlight pilots usually fly on PMDs – pilot medical declarations.

13 What is the differences training required for an aircraft with equipment such as a glass cockpit, retractable undercarriage, variable pitch propeller, ballistic recovery chute or tailwheel?

See the BMAA guide on differences training for details. In the same way that your instructor decides when you can go solo, they can also decide when you have demonstrated you have received suitable differences training. There is no fixed syllabus.

14 Can an instructor used to training pilots on a 450kg microlight also train pilots on a 600kg aircraft?

If the microlight instructor has the relevant experience, then yes. An example is that a microlight instructor

must have suitable experience on heavier-than-450kg microlights before s/he is able to instruct on them. Differences training also applies to instructors!

15 The 600kg Light Sport Microlight category sounds exactly the same as the 600kg Light Sport Aircraft category... what's the difference and do we really need a different category?

Microlight flying is very affordable and accessible – certainly so when compared to EASA rules and regulations. Microlight owners can perform maintenance themselves, medicals are less onerous, costs are much lower and UK pilots benefit from the BMAA (and the LAA!) working to protect the relative freedoms that microlight pilots enjoy.

16 What difference will this make to microlight flying and the BMAA?

We already have 600kg class Light Sport Microlights flying in the UK. Existing 450kg microlights that were certified to 472.5kg with a ballistic parachute system but were flying without one can apply to use the extra 22.5kg as payload; this is a real bonus for 912 Rotax powered three-axis microlights. New, heavier versions of existing designs (such as the Skyranger) have been developed to take advantage of the extra weight

and there are also other new types being introduced.

17 Both the BMAA and LAA are able to administer 600kg microlights – which should I choose and why?

Both organisations can administer Light Sport Microlights. The BMAA is dedicated to microlights and is working with several new suppliers to ensure that microlighting flourishes in the future. BMAA works hand in hand with suppliers to ensure they understand how to enter the UK market and then get the best ongoing support.

18 Has the CAA agreed the implementation process?

Yes. CAP 2163 sets out the rules and BMAA approved the first Light Sport Microlights on 19 November 2021.

19 Does this affect SSSR aircraft?

No. The SSSR rules haven't changed.

20 Will a 600kg microlight cost more to insure?

Yes – possibly. The minimum third party and passenger liability cover increases from £1m to £1.75m for aircraft 500kg or heavier, though many pilots already have this level of cover. Also, the new Exodus DeltaJet flexwing is approved to 499kg to remain under that limit. ▶

Practice Pans make perfect

Practice Pan calls are important to both pilots and the Distress & Diversion cell, for training and staying sharp...

Welcome back! This month's edition we'll be discussing practices, which is thankfully what we spend most of our time doing, although many would argue that we spend most of our time waiting for something to happen... (I jest).

Practices involve both Practice Pans and Training Fixes (simulated lost), which is brilliant for both our currency in Distress & Diversion and for you to practice your own procedures and gain increased trust in the system.

If you read the introduction article ([FLYER, March, p46-47](#)) you may recall us mentioning Auto-Triangulation (Auto-T), which covers large parts of the UK in varying degrees. The screens for Auto-T are directly in front of the D&D Controller and the

Support Controller. It is this system that is predominantly used in anger during emergencies and for the multiple practices we receive each day. It's still free to practice!

The solution for Auto-T is provided by Leonardo. There are various antennas around the UK which will lock-on to the aircraft transmitting if within suitable coverage. High ground or low flying aircraft are more difficult for the antennas to pick up. Throughout the country there are 30 UHF, 31 VHF and 12 Practice Emergency Training Frequency (PETF – Military only) antennas. The map below shows the locations of the current DF sites.

Auto-T is an incredible system. Not only does it lock-on to the aircraft calling up on the respective frequencies, but it overlays it onto an Ordnance Survey map which can be zoomed into a 100m range. This enables us to give accurate descriptions of the ground to help lost pilots find their bearings while looking out their windows. This could be anything from a motorway junction to a church spire.

As well as helping identify the location of aircraft, Auto-T couples as a huge database, which is carefully maintained. This has details of 143 civil aerodromes as well as 34 military bases.

The airfields on the database range from the major airfields to the farm strips dotted around the UK. The aerodromes and airfields are plotted on the Auto-T map and are all interactive. D&D can click on an aerodrome of interest and it'll give us the runway, the Landing Distances Available (LDA), surface of the runway (be it asphalt or grass), frequencies (if applicable) and their phone number.

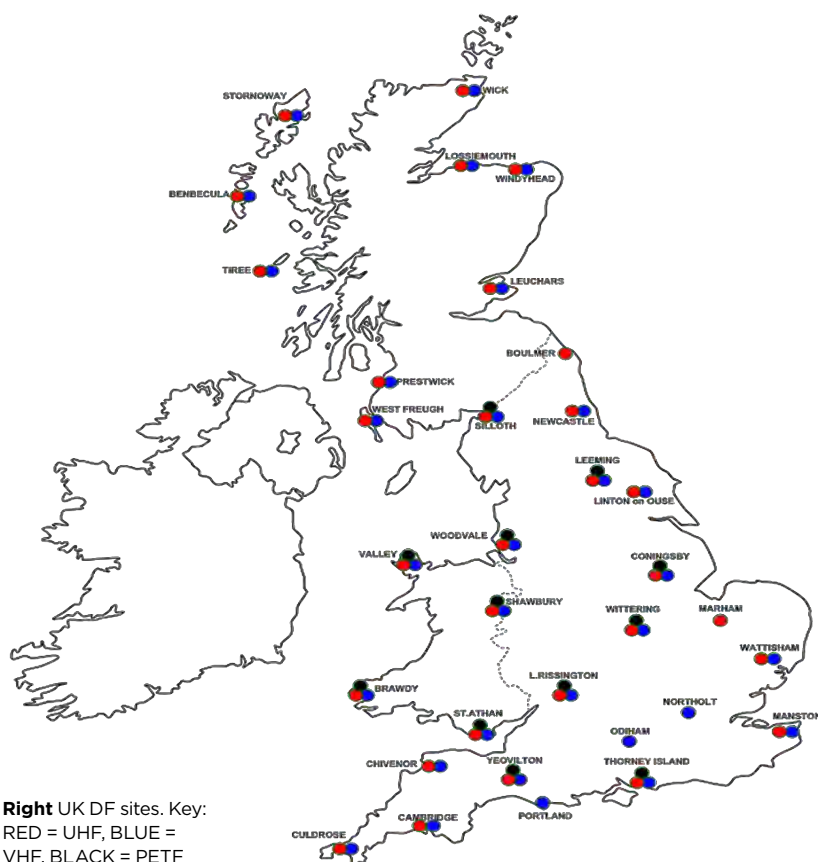
This enables D&D to pass timely and accurate information to the pilot and a steer to the nearest suitable aerodrome based on the aircraft's needs and specification. Needless to say, this could be critical to pilots in need of making a quick decision. If in any doubt, the earlier the call to D&D the better!

Now that we've discussed the system, this is where you come in.

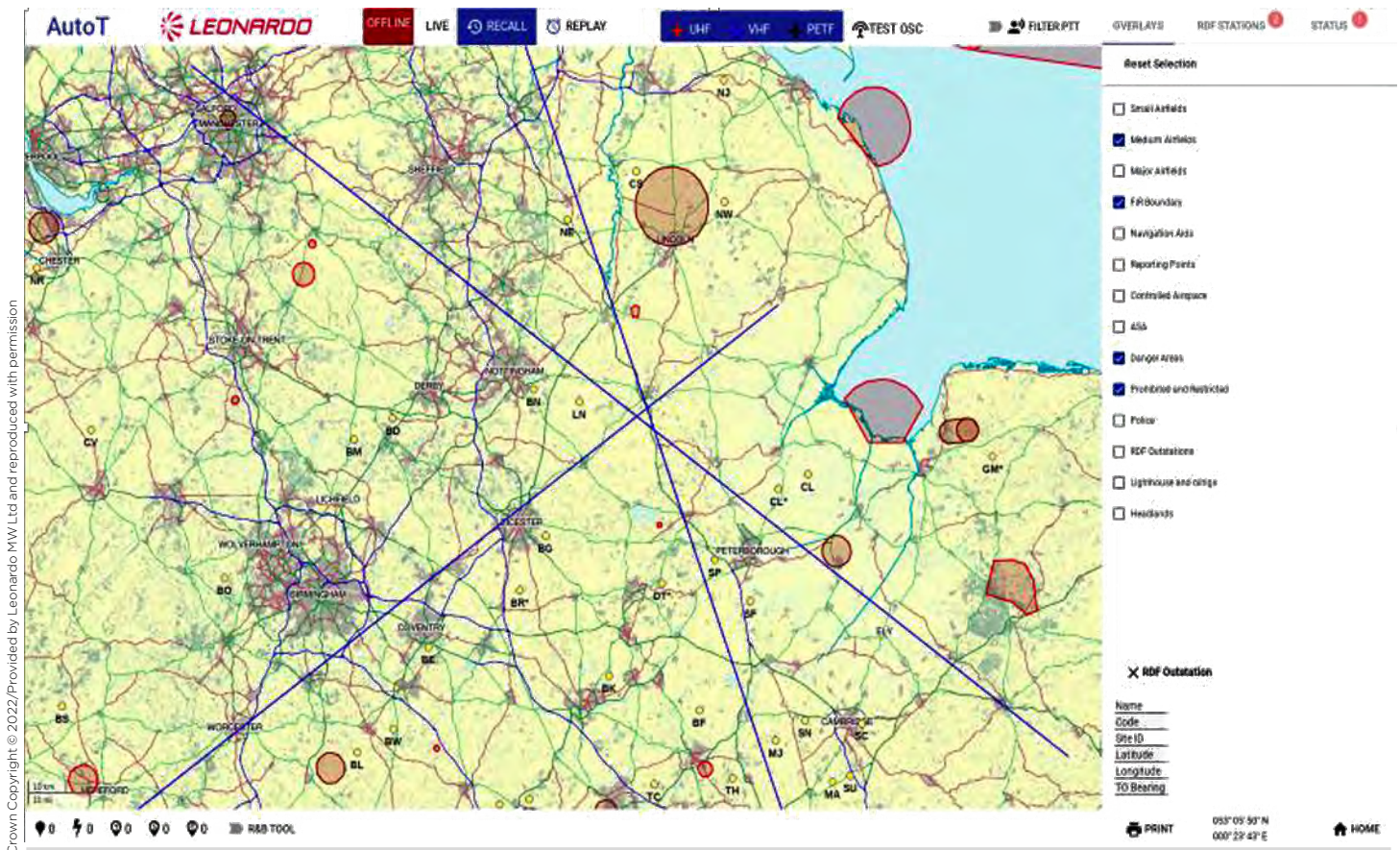
GPPAN: 'London Centre, Practice Pan, Practice Pan, Practice Pan, GPPAN, Practice Pan.'

D&D: 'GPPAN, London Centre, Practice Pan acknowledged, pass details when ready.'

What cannot be illustrated is that during the initial



Right UK DF sites. Key:
RED = UHF, BLUE =
VHF, BLACK = PETF



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call, the Controller and/or Support Controller will be jotting down your callsign and details, seeing which frequency you're on, which frequency leg you're transmitting on, how many lines of DF there are and plotting your initial position.

It does take a little practice (hence the Practice Pans and Training Fixes are brilliant for us too).

GPPAN: 'London Centre, GPPAN is a C152 with 2 POB, simulated stuck throttle, request steer for Fenland, G-AN'

D&D: 'G-AN, London Centre Roger. Stand-by to steer.' Here we'll be ranging in and getting a range and bearing to Fenland.

Upon ranging in, the map becomes accurate in identifying local towns, villages, motorway junctions or even prominent hills.

D&D: 'G-AN, your position indicates 1.5nm south of Grantham. Taking your own terrain clearance steer for Fenland is 110 degrees 23.5nm.'

G-AN: 'Roger, 110 degrees, 23.5nm. G-AN'

D&D: 'G-AN do you require any further assistance?'

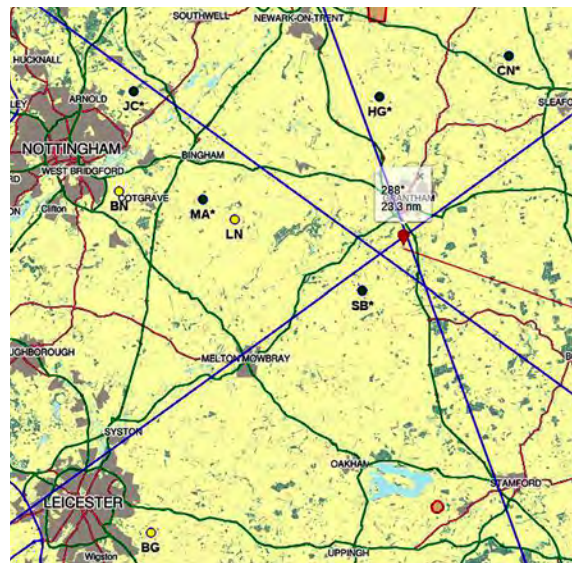
G-AN: 'Negative, G-AN'

D&D: 'GPPAN roger, thanks for the call, continue on-route g'day!'*
(*Straight from CAP413!)

With varying details, 90% of the Practice Pan calls we receive are like this. Training Fixes are almost identical, but say 'Training Fix' instead of 'Practice Pan' to simulate unsure of position or lost.

If there are only two lines of DF, we'll caveat the accuracy with 'based on two lines of DF which may be inaccurate.' If none or only one line is observed, we'll ask you to transmit a squawk and transpose your position from radar onto Auto-T.

If you're squawking and we are still unable to observe you, we may ask you to climb (if it's safe to do so), or request your last known position and call a



Above In this image, the aircraft making the Pan call, G-PPAN, is approximately 17nm east-south-east of Nottingham

Left Initial Pan call made, D&D will range in on the signal to find out exactly where you are and how they can help

nearby radar unit to see if you are visible on their radar and transpose your position based on their range and bearing information.

If all else fails we can see which leg you're transmitting on, ask you for your last known position and get you to 'say what you see' out of the window... things on the ground, that is, not types of cloud. Make sure you stay vigilant of other aircraft – this is still your primary responsibility. This level of difficulty locating aircraft thankfully very rarely happens, but we'll be doing all we can to locate you.

So there you have it. All trade secrets out in the open. Pre-Covid traffic levels, D&D would usually get on average 3,500 practices a year. We have had little over 3,500 in total over the last two years.

Don't be a stranger. After all... Practice Pans make perfect!



Safety Accident Analysis

What lies beneath!

Buying an aeroplane can be somewhat fraught and as **Steve Ayres** reminds us, 'getting it right' can challenge the best of us. These accidents remind us of the merits of leaving no stone unturned during the quest...

Deciding to purchase an aeroplane is a major life choice and incredibly rewarding, although one that few of us get the opportunity to realise. Costs aside, the process can be a bit of a minefield. It takes many hours of looking, researching and ultimately, costly inspections and preparations before your 'beautiful baby' is allowed home! This month's collection of accidents show how detailed that work needs to be if some pitfalls are to be avoided.

Accident 1

About a week before the accident, the previous owner had flown the fuel-injected single-engine aeroplane, a Beech 35, about 70 miles for inspection, before selling it to the accident pilot. It was an uneventful flight, as was the pre-buy inspection. The sale was done, and the aeroplane remained at the accident pilot's airport, Sedona Airfield, Arizona, with an elevation of about 4,800ft.

The accident pilot arranged to begin an aeroplane check-out process with a certificated flight instructor (CFI), and it was to be the first flight since the pre-buy inspection. The CFI and the pilot reported the pre-flight inspection, engine start, taxi out, and engine run-up for the planned local flight were all normal. Based on the airport's high elevation, they leaned the fuel mixture for take-off.

The take-off roll and lift-off were normal, but just after the aeroplane lifted off, both pilots sensed a notable loss of engine power, the stall warning sounded, and the aeroplane began to roll, right-wing down. The aeroplane drifted to the right and impacted the unpaved surfaces adjacent to the right

side of the runway. The aeroplane crossed rough terrain, landing gear collapsed, and it slid to a stop. The left wing sustained substantial damage.

Initial post-accident examination of the aeroplane did not reveal any pre-impact mechanical deficiencies nor failures that would have precluded normal operation. The engine started and operated normally during a test run while it stayed on the airframe. However, fuel was seen leaking from the throttle and metering assembly (T/MA), so testing was ended.

Visual inspection of the T/MA and nearby components revealed grime around the shaft-case penetrations and blue staining on the airframe structure below the T/MA. Both were evidence of pre-existing fuel leaks. Although the leak origination date could not be determined, the appearances of both signatures were consistent with their existence while the aircraft was in service, rather than as a result of the accident impact. The investigation could not determine how long the leak had been occurring, or if it was present at the time of the last annual inspection, about eight months before the accident. The visual evidence of the existing leak was unlikely notable enough to have been identified during the pre-buy inspection.

Disassembly of the T/MA revealed the fuel leaks were a result of O-rings that lacked normal flexibility and were non-resilient. At the time of the accident, the T/MA was two years beyond the manufacturer's overhaul schedule of 12 years, which resulted in age-related deterioration of the O-rings, and the ensuing fuel leaks.

The fuel leaks in the T/MA had the potential to reduce fuel flow to the

fuel manifold valve, resulting in uncommanded and imprecisely controlled leaning of the mixture. The aeroplane's previous owner reported that he rarely leaned the mixture for take-off from high-elevation airports, whereas the mixture was leaned for the accident take-off. Thus, the mixture for the previous owner's take-offs might have actually been unknowingly leaned due to the faulty T/MA, but not so much that it prevented take-off. In contrast, when the accident pilot and CFI leaned the mixture while the engine was at less than full power, the fuel leaks in the T/MA could have caused an overly lean mixture for full throttle operation, resulting in a significant power decrease.

Communications with the aeroplane's previous owner indicated that he typically flew out of Sedona – and other high elevation airports in the morning – and didn't 'recall ever leaning for take-off'. He stated that on occasions when he operated out of such airports when 'temperatures were high', he 'always leaned the engine before take-off on the runway by taking the runway, running the engine to full rich and power, and then leaning to take-off power'. He did not provide any further details.

According to the CFI on the accident take-off, they 'adjusted the mixture for best operation considering the density altitude at Sedona Airport'. The pilot stated that his recollection was that 'we leaned to roughness and then enriched from this point. Also looked for maximum power (rpm)'. He did not recall how far the mixture control was backed out after leaning.

Accident 2

The pilot reported that the pre-flight inspection, engine run-up, take-off, and climb in a Stinson L-5, which he had not long owned, were normal. About 40 minutes into the flight,

“Fuel was observed leaking from the throttle and metering assembly”



while flying at 2,200ft msl and 10 miles from the departure airport, he noticed the oil temperature ‘jumped’ to the top of the green arc and the oil pressure was near the bottom of the green arc. He reduced engine power, adjusted the mixture to full rich, and turned toward the airport. Shortly thereafter, the engine lost total power and the pilot’s attempts to restore power failed. The propeller was static and didn’t move during attempts to restart the engine. The pilot made a forced landing to a lake and the aircraft sank after the pilot egressed.

It was recovered and examined by a Federal Aviation Administration (FAA) inspector. The left wing was substantially damaged. The inspector attempted to rotate the propeller by hand, but it would not move.

The last annual was performed 10 months earlier, at 6,113.2 tachometer time and had flown 10.6 hours since then and 711 hours since an earlier engine overhaul. Subsequent to the overhaul, the propeller had been removed and replaced on two separate occasions due to propeller strikes. There was no record of any crankshaft inspections following either of the propeller strikes, contrary to manufacturer guidance. More damage found on the No.1 and No. 2 cylinders was caused by crankshaft failure and the pistons that impacted their respective rods and skirts.

In addition to the main fracture, a separate crack was discovered slightly aft of the number one main bearing and had propagated nearly the width of the crankshaft, but had not fully failed. The thrust nut, which required 375 ft-lb of torque, was easily removed without effort or special tools, showing that it was torqued to a value notably below specification. This could cause axial play along the crankshaft and contribute to the progression of the crankshaft failure that was likely initiated during the previous two propeller strikes.

The crankshaft likely failed after its structural integrity was compromised during previous propeller strikes. The improper torque on the thrust nut likely exacerbated the failure of the crankshaft.

On 18 October, 2016, Lycoming issued a Mandatory Service Bulletin No. 533C (Superseded 533B) with recommended action for sudden engine stoppage, propeller/rotor strike, or loss of propeller/rotor blade or tip for all Lycoming reciprocating

aircraft engines. The SB included detailed checklists for the inspection.

Accident 3

The pilot was relocating a newly purchased, Grumman TBM-3E ‘Avenger’ aeroplane from California to Illinois. The aeroplane had undergone refurbishment and condition inspections during the previous six months. Before the flight, the aeroplane was loaded with emergency and survival gear and the pilot and passenger watched the parachute manufacturer’s safety video.

On the morning of the accident, the pilot flew from Zamperini Field Airport (TOA), Torrance, California, to Ak-Chin Regional Airport, Maricopa, Arizona. After refuelling, the pilot departed Maricopa and climbed to an altitude between 11,500ft and 12,000ft msl.

About 45 minutes into the flight, the pilot heard a loud bang with vibrations and thick smoke that entered the cockpit. He stated that the engine was operating, but not producing enough power to maintain altitude. The passenger stated that he

saw sheets of oil exiting the right side of the engine cowling.

As the aeroplane descended, they determined that there were no safe landing areas due to trees and rugged terrain, and decided to egress about 1,500ft agl. The passenger exited first, followed by the pilot. Both parachutes deployed successfully. However, the pilot and passenger received serious injuries after landing in trees and falling to the ground, and were unable to call for rescue due to the lack of cell phone coverage in the area.

The following morning, a fire service truck passing through the area found the pilot and passenger and they were subsequently transported to a nearby medical facility via ambulance. A review of air traffic control radar data revealed that the aeroplane continued eastbound on a stable, descending flight path after the pilot and passenger egressed. The last radar return was at 10,000ft msl, (about 1,900ft agl) 19 miles east of Whiteriver Airport, Arizona, and eight miles south-west of Mount Baldy. Multiple air and ground searches were conducted, however, the aeroplane was not located.

Ayres’ Analysis

Taking ownership of your own aeroplane has to be one of the most momentous and rewarding things most of us will ever do. It usually comes at considerable financial cost for the purchase and ongoing running costs. Not to mention the amount of time required to look after that most cherished of purchases. So once the decision is made that owning an aeroplane is ‘your thing’, finding the right airframe becomes a major challenge and one we know we need to get right.

While many of us are content with buying our cars ‘as seen’, few of us would consider doing so with an aeroplane, unless we intend a major restoration or, perhaps, unless we know every aspect of the airframe’s provenance and probably its owner very well. Most of the time the process is trouble free, although rarely do we get away entirely ‘cost free’, as inevitably certain things need to be addressed early on in the ownership.

Pre-purchase inspections by specialists who know the aircraft type well are the norm and scouring the paperwork is a must. But as these accidents show it can be difficult to get properly ‘under the hood’ and to be certain all the potential ‘gotchas’ have been unearthed.

In the first accident it was probably simply a different way of operating the aeroplane that exposed the underlying, minor fuel leak that caused the subsequent engine failure. In the second case, detailed post-crash analysis of the documentation identified potential engine shock-loading events which had no documented follow-up work carried out on the engine itself.

And, finally, an excellent reminder to take nothing for granted, even on a delivery flight! I realise few of us will ever get the chance to fly a ‘warbird’ but this crew obviously took their mission extremely seriously and prepared properly. Doubtless the thoroughness of that prep and a focus on potential abandonment gave them a fighting chance of survival in some pretty hostile terrain.

All a reminder, if one is needed, to get a proper inspection from a specialist, to research the provenance of your chosen beauty and to be particularly meticulous in your mission planning and rehearsal of emergency drills... right from the get-go! ▼



Safety Accident Reports

Don't rush to... limbo!

Steve Ayres summarises and comments on accident reports from around the world, and in this month's Safety Kit looks at a way to check engine data, such as prior to an aircraft purchase...

Limbo attempt

Rollason Druine D.31 Turbulent G-ARGZ

Damyns Hall Aerodrome, Uppminster, Essex

Injuries: One serious

The display team were conducting a regular training session with three new pilots who were completing their introductory training. As the weather was benign, as well as practicing some formation elements, the display leader decided to introduce the new pilots to the 'limbo' element of the display.

The limbo manoeuvre involves flying the aircraft below a string of bunting suspended approx 20ft above the ground between two poles. He described that, for this first practice, the aircraft should descend from at least 500ft aal flying in a straight line towards the limbo gate aiming to achieve approx 90kt as the aircraft reaches the gate. Full power should be applied just prior to the gate, if not already applied, ready for the climb. It was emphasised that pilots should not approach the limbo gate at low level over an extended distance. The minimum height of five feet should be achieved just short of the gate with sufficient lead-in to achieve stable level flight. Once through the gate, a straight climb was to be initiated back to 500ft prior to entering the circuit.

To enable the new pilots to experience the limbo procedure each of them observed three existing pilots flying the manoeuvre from the ground. Two of the new pilots (in the second and third position), the display leader and a fourth experienced pilot then took off in the four Turbulent aircraft for a practice formation flight away from the airfield. As briefed, when they returned to the airfield,

they practiced the limbo manoeuvre. Shortly thereafter, the second flight commenced with formation practice away from the airfield as before. On return to the airfield the team planned to conduct two passes through the limbo gate as they had done on the first flight. The first two aircraft passed through the limbo gate without incident. However, as the third aircraft approached the gate it was seen to pitch down and hit the ground. As it did so the wings folded upwards and the aircraft came to rest inverted approx 80 metres past the limbo poles. The pilot was helped from the aircraft and taken to hospital. He had suffered a serious head injury and other injuries. He was released from hospital after 72 hours.

It is likely that the pilot thought he was slightly high as he approached the limbo gate and instinctively pitched down. The aircraft probably struck the ground before he had time to realise the effect of the pitch input.

Comment I have some experience at limbo flying and I know it's difficult to override the reflex to bunt hard when a bird looms large in the windscreen. Trying to protect one's head as the limbo tape races towards you would instil the same response, except here the ground got in the way. The Team has revised its training to deliver a more 'progressive' approach. A leap of faith?

Bit rusty...

Zenair Zenith CH701 N396PH

Marion, Virginia

Injuries: None

The pilot, who was 91, reported that he had purchased the aeroplane three

months earlier with the intent of obtaining his sport pilot certificate, and had flown it to his home airfield.

He stated that, on the day of the accident, he decided to fly the aircraft around a nearby airport traffic pattern 'to see how it did'. The accident flight was his second flight in the aeroplane. While landing, the aeroplane descended rapidly from about 15ft, landed hard, and bounced.

The pilot applied full throttle, however, as the aeroplane climbed through about 20ft, it dropped rapidly a second time and landed hard. The right main landing gear wheel assembly separated, and the aeroplane veered to the right before it came to rest upright on the edge of the runway. The fuselage and left wing were substantially damaged.

The pilot reported that he began learning to fly in 2001 and accumulated about 60 total hours of flight experience. He did not complete his training, nor had he flown an aeroplane since that time, until he purchased the accident aeroplane.

The circumstances of the accident are consistent with the pilot's failure to maintain control during a bounced landing.

Comment Interestingly, in the hand-written accident report, the pilot casts doubt on the suitability of the aircraft design. Unsurprisingly, the investigation didn't come to that conclusion. Taking an aircraft airborne when unqualified and having not flown for 20-odd years is crazy enough even without, at 91 years old, one's reflexes being less sharp.

Dripped out

American Aviation AA1, Yankee N9218L

Warthen, Georgia

Injuries: Two minor

The commercial pilot reported that, on the day of the accident, he filled each tank of the newly purchased American Aviation AA1 aircraft with 12.5 gallons of fuel. On his first flight,

“The aircraft pitched down and hit the ground. As it did so the wings folded upwards...”



after about 20 minutes of flying, he noticed he was running out of fuel.

The pilot thought the fuel burn was very high and decided to land at the nearest airport, which he did, and added about 24 gallons of fuel. After departure, and about 30 minutes of flying, he again noticed that the aeroplane was running out of fuel. He planned to land at the nearest airport.

However, about 15 miles away from the airport, the engine lost total power. The pilot switched fuel tanks and turned on the electric boost pump, and the engine restarted. A few minutes later, the engine lost total power again. The pilot noticed both fuel tanks were out of fuel. During a forced landing in a field, the airframe was substantially damaged.

Post-accident examination of the engine revealed that the carburettor float bowl plug was missing, which allowed fuel to leak out of the carburettor. Therefore, the aeroplane's fuel consumption during the flight would have increased substantially and likely resulted in exhaustion of the aeroplane's available fuel supply at a greater-than-normal rate. Although the pilot reported that the aeroplane was recently inspected before he purchased it, no maintenance records were available for review, so the scope of work done to, or inspections of, the carburettor could not be determined.

Comment This could easily have made it into this month's analysis piece as it shows how we rely heavily on noticing things 'out of the ordinary' and which, in the case of a recently acquired aeroplane, is often difficult to achieve. Unfortunately, the pilot managed to persuade himself that there was nothing wrong with his fuel system when, clearly, there was.

Conspiracy theory...?

Champion 7ECA

N2561G

Pembroke Pines, Florida

Injuries: Two serious

During a training flight, the pilot receiving instruction 'froze on the controls' during a demonstration of a power-off stall. He did not respond to the flight instructor's commands to release the controls, and the instructor was unable to overpower the pilot's

"The pilot attempted to board the aeroplane while it was rolling"



control inputs. The aeroplane remained in a stall condition, descended, impacted marshland, and sustained substantial damage to the wings and forward fuselage.

The aeroplane's altitude at the start of the descent was not captured by radar data, however, the aeroplane had previously been flying at altitudes of 100 to 500ft amsl in the practice area about 1.5 minutes before radar altitude data was lost.

Comment It is difficult to get one's head around this particular accident as there seem to be too many imponderables. A sure-fire takeaway though is that teaching or demonstrating stalls at low-level doesn't feature in the playbook of most instructors!

A mystery...

Cessna 177

N29516

Elkhart, Indiana

Injuries: None

The pilot pre-flighted the aeroplane for a flight with two passengers.


The passengers sat in the aeroplane with their seatbelts secured when the pilot lowered the propeller blade by manually 'smacking it down' in a

clockwise direction. The engine started, and the aeroplane began to move forward under its own power.

The pilot attempted to board the aeroplane while it was rolling but was unable to do so. The aeroplane travelled across a ramp area, through a grassy area, over a taxiway, and up a slight incline where it became airborne momentarily before it came to rest in a field.

The aeroplane sustained substantial damage. Post-accident examination of the aeroplane found the mixture and throttle in the full-forward position and the ignition key removed from the ignition. The key's position before the accident could not be confirmed.

When the pilot rotated the propeller an inadvertent engine start occurred. The reason for the inadvertent start could not be determined based on available evidence.

Comment 'Heavens to Murgatroyd, Batman...'. This may be a misquote, but I am pretty sure we now have two traumatised passengers who will never take to the air again! I will leave the sleuths among you to come up with a possible cause! 

Safety kit

Savvy buying

SAVVY AVIATION'S SAVVY ANALYSIS PLATFORM [Free](#)

Picking up on this month's analysis piece on buying an aircraft, I was reminded that so much of the kit we carry in our aeroplanes records all

sorts of useful data. Some of it is easy to analyse and may do little more than confirm a stable approach speed or rate of descent, but more capable EFIS will do much more. Including peak cylinder temps, manifold pressures, rpm, in addition to all the air data. Having downloaded the data, just 'drag and drop' it into Savvy Aviation's 'analyser'. In most cases the free offering will flag up areas of concern but there is a more detailed 'paid-for' service which some may find useful. So why not add a data dump to your list of things to request when buying an aircraft and run it by the likes of Savvy Aviation...





This page Author Kai's subject for his Dawn to Dusk flight was the WWII Chain Home Radar Network, calibrated by a squadron of gyros. This is what's left of the radar station at Stoke Holy Cross, a village in south Norfolk

Right Map of Chain Home Radar stations around the UK from Darren Piltcher's book



Chain reaction...

Winner of the 2021 Pooleys Dawn To Dusk Challenge, **Kai Barnett**, decided to pay homage to gyro pilots from 529 (Rota) Squadron who flew Avro 671 Rotas to calibrate the WWII Chain Home radar network...

As a gyroplane pilot, I aimed to create a flight which would be relevant to gyros, of personal interest to myself and perhaps obscure enough to pique interest in others. Being based at the now closed

Chiltern Park, there was one obvious choice. During WWII the UK's air defence system used the Chain Home radar network for aircraft detection. The accuracy and calibration relied upon the use of a squadron of autogyros, 529 (Rota) Squadron, to fly slow and accurate patterns so that transmitting and receiving stations could calibrate and harmonise their equipment.

The Avro Rota autogyros arrived at RAF Henley-on-Thames, from RAF Halton, during August 1944 and flew from there to various outlying airfields for the calibration flights.

Much of this history is documented in *Spitfires and Autogyros* by Darren J Piltcher. Inspired by the book and with historic locations and airfields

disappearing with land usage, I began to see which sites previously used – or visited – by 529 (Rota) would be in range to be photographed from my aircraft within the required dawn to dusk period.

From the map in Mr Piltcher's book and a 1:500 South England chart, I created a triangular route which appeared feasible.

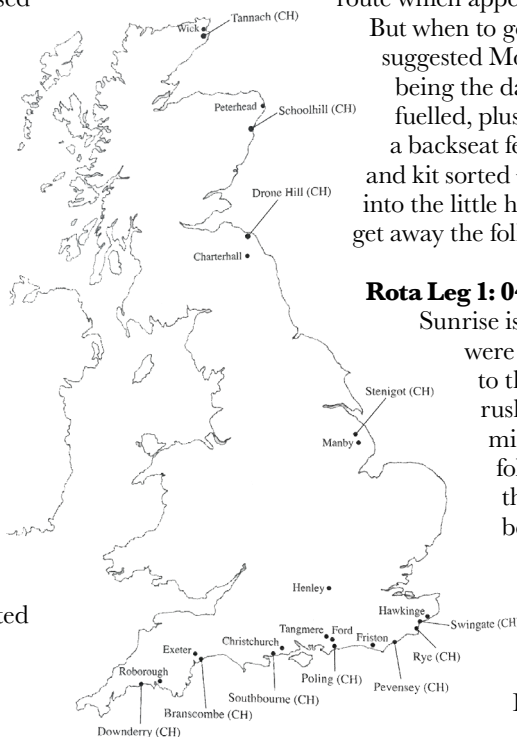
But when to go? Weather forecasts suggested Monday 14 June looked like being the day. Sunday saw the aircraft fuelled, plus an additional 40 litres in a backseat ferry tank, books, charts and kit sorted – and stowed and moved into the little hangar ready for a smooth get away the following morning.

Rota Leg 1: 0416 local, engine start.

Sunrise is at :46, so the gyro and I were good to go. A gentle taxi to the 04 threshold, but no rush as warm up is nine minutes. Run up is normal, followed by a slightly longer than usual composure check before entering the runway.

The rotors spin up and we're moving. We lifted out of the grass at 0427.

Turn right to RAF Henley-on-Thames, Upper





Culham Farm, former home of 529 (Rota).

Next waypoint is RAF Halton, the initial home of the Avro Rotas. We're going to pass Booker, so I make a call, not expecting a reply, but looking and listening all the same. After all, I'm daft enough to be here, therefore, logic suggests that somewhere else there is someone else equally as daft...

Change radio frequency to Halton and Luton radar and set 0013. Nothing heard from either, but 'we' (gyro and me) proceeded with caution, getting what I hope will be a nice photo of the runways and hangar at Halton.

Radar calibration work was controlled by Fighter Command, 60 (Signals) Group from Oxendon House in Plantation Road, Leighton Buzzard. There's nothing there now except a plaque, but it's en route so it is included in our pilgrimage.

We settle into the cruise, and our next photo task is the former site of Stenigot Radar, at the northern tip of our triangle. This is no straight line cruise because first we have to pass around Cranfield, which I call, but there is no activity, and then call again as we pass close to the ILS. Still no reply. The next call is RAF Wittering for a MATZ crossing, heading north across the stub which enables a good view down the runway. All is quiet with just a few lights.

Next on the PLOG is RAF Coningsby but this time we'll be in the MATZ proper and passing close to the ATZ as I've got Woodhall Spa as a way point. A call for a service goes unanswered and I continue on track making a position call as we enter the MATZ and again as we approach the extended centreline of the runway. There are lights but no

Top left After lift-off from Chiltern Park, first target was Upper Culham Farm, the former RAF Henley-on-Thames, home of 529 (Rota)

Top right Then onto RAF Halton, still an operational airfield

Above left Stenigot Radar is easy to see with its modern mast

Above right Site of former RAF Manby with runways still just visible

aircraft moving. Call from Woodhall Spa and reflect on the crews of 617 squadron, then a final call leaving the MATZ remaining on frequency as their LARS covers the next section of the flight and down into the Wash.

Twelve miles away and my 'top-of-triangle' target is in sight, we are on track ahead of time so I relax a little. Activating the 'autopilot' (a piece of foam wrapped around the stick and held by my knees), it's time for a coffee break.

Stenigot is easy to see as there is a modern mast and a taller one just to its north-west. My intention is to try and take the photos at 1,000ft above the ground to try and keep the perspective the same for all sites. I remove the camera. It sits neatly on my front, secured by a neck strap with the lens tucked into my lifejacket, and I check the settings. Good job too as they've been bumped, so previous pictures might not be up to the quality I want.

I'm really pleased there's a mast (albeit new) and an original Rx or Tx block, the fields around are beautifully flat and productive. However, I did know that this site was chosen for its elevation, view to seaward (it must be about 12nm inland) and it's flat land behind. About seven minutes to the east is RAF Manby that was. I line up the shot of the airfield, classic grass and peri-track with serrated roofed hangars behind. The camera timer says 0502(z). Time to target was 2hr 6min. We were there in 1:37 and mental maths tells me we're better than 85kt average. So far so good.

Turning south-south-east we have the sun off the left shoulder and everything looks distinctly grey and

“I talk myself through my plan if the motor stops. Look for a ship, spot one, and deviate course slightly”

uninviting. We pass west of Skegness within a gyro’s glide of the runway at Croft, as I climb and go through the ‘feet wet’ checks. Engine health Ts and Ps, pull the helmet aside for an unhindered listen to the little Rotax at 5,000rpm. All good. Radio set for D&D and transponder Mode S 7000, Coningsby on the dual watch. Radio helmet connector clear and belts clear for ditching and talk myself through my plan if the motor stops. Look for a ship, spot one, and deviate course slightly.

From Gibraltar Point to Hunstanton Lighthouse it’s 11 miles, from 2,500ft a gyro will glide for maybe 1.5 miles, a 747 would do 10. Halfway across all is going well and put in an orbit. WhatsApp flashes up a message: “Why the orbit?”

I reply, “Calibrating”, which then descends into whether or not I’m having a pee and that my ‘equipment’ is obviously ‘insufficient’... I’m not alone. The reprobates from the hangar are up despite it not being 0630 yet and FlightRadar is working.

Norfolk and the evidence of old airfields is all around, but I try not to get distracted. My next radar station is West Beckham about 25 minutes away – and my fuel tank reminder comes on. It’s not an issue but a prompt just to keep me aware. I cancel it and make note that next time it *will* be important.

Again, this old radar station is not hard to find as there is a modern TV mast on the site. There is also more evidence on the ground of its wartime role with pillboxes and what could be Chain Home Low locations. There’s an excavator near the Rx block (hidden in the trees) and a new road going in which doesn’t bode well. The Tx block is still there too, but I can’t quite tell if the mast bases are present.

A Notam came up stating that the Norwich CTA would come live before we got there and the airspace would become Class D requiring Air Traffic Control to authorise entry and crossing. Squawking 7350 and giving the approach controller a call at five miles out, and requesting a crossing from Coltishall to Stoke Holy Cross via Thorpe, I was met with a friendly voice giving me the QNH and advising me to remain three miles clear as two helicopters would take off and climb behind me.

Sure enough my ADS-B traffic picked up the



Above West Beckham: The Tx site is just out of picture to the left, the operations centre is the first building on the left still earth covered. The Rx site is on the right with the excavator near the Rx block. Mast is modern – for TV
Below left Darsham Radar Rx block visible in the trees. Agriculture reclaimed the rest
Below right Bawdsey Manor, home of radar and its initial development

aircraft as they lifted off. Stoke Holy Cross was an absolute delight, a former Chain Home radar site with two newish masts to enable easy location but with the remains of some of the original mast feet still visible and Tx and RX blocks. Less than 20 minutes away is High Street Radar, Darsham, which was one of the first receiving stations to be built. I wasn’t aware at the time (until after my flight) that the site had also been upgraded to a full transmitter site and I knew the evidence of the Rx site would be difficult to spot being hidden in trees. The upside was that the proximity of the railway and road junction gave me confidence on the navigational side. Result. The Rx block was visible among the trees as well as other concrete structures. The Tx site has been completely reclaimed by agriculture.

Fuel transfer and time to evaluate my contingencies, should the fuel fail to flow. Running parallel but about five miles inland from the coast, I can see that the fuel is flowing and I won’t need to head for Bentwaters or Great Oakley.

Orford Ness is over to the left and was the site of much experimentation and innovation, but I didn’t have any knowledge of the Rota boys being directly involved at the time. So, on to my next objective, Bawdsey Manor – the home of radar and its initial development, as well as some of its continuing





development. Now a residential activities centre I thought it wise not to fly too low taking photographs... Apparently in 1943-44 the boffins here were working on a project referred to as 1090 (the ADS-B frequency) for the RAF. I wonder what happened to it?

Over Felixstowe and Harwich looking for the next mast, there's a new one on an old site, Great Bromley. There are lots of structures on the ground and I struggle to see anything to positively identify the location as a former Chain Home site, until I spot the flat top of the Rx block.

Passing to the south of Colchester, I called Southend Approach to reset the squawk and make my request for the photo tasking. Yes, it all looks possible... I'm to call for clearance after getting my photos of the Great Baddow complex and make my turn in. Great Baddow has one of the last original transmitter masts and the site next to it has been used for radio and radar development ever since.

I'm given clearance to the village of Canewdon via the overhead of Stow Maries, a former WWI airfield, and now a museum. I slow and reduce height for the pictures of Canewden, and for a change the Tx site is the more obvious. I'm directed out of the zone via Southend Pier and Stoke on Medway Airfield. I know this part of the world as I learned to fly gyroplanes here.

Southend passes my next radio frequency and I read back correctly, then squawk Conspicuity. I called Rochester, no reply, it's early, I'm ahead of time, so I'm not concerned. I called again, no reply. I make a long

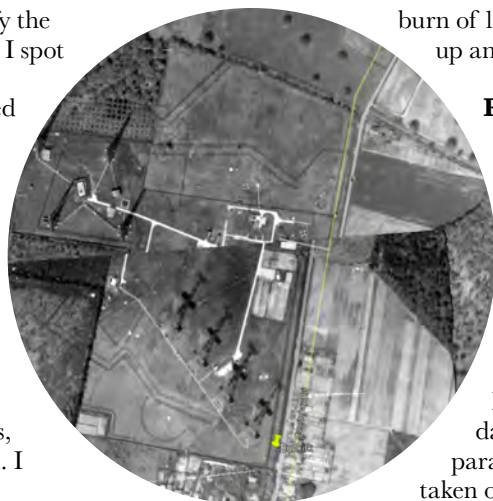
Top left Great Bromley Radar

Top right Great Baddow Radar

Above left Tx site of Canewdon Radar

Above right Dunkirk Radar foreground

final call, lights on and with all checks complete, call short final two zero. I land and I am greeted by the ground team with, "What's wrong with your radio?" I replied, "Nothing." Closer inspection shows I've dialled up 122.225 instead of 122.255. The engine shut down at 0900 after 4hr 46 min running and 4hr 29min flying (35 minutes ahead of schedule averaging about 85kt). I put 80 litres of fuel in which gave a fuel burn of 16.8 l/hr (or 17.8 if you don't include warm up and taxi).



Above Dunkirk Radar in 1940

Rota Leg 2: Rochester to Exeter.

Although this leg is shorter than the first, at 240nm and 3hr 50min, it is more complicated with radio work and I'm expecting more traffic. The prop turns at 0959 and the wheels are out of the grass 10 minutes later. A radio call advises me there are paragliders in the vicinity of Detling but can't be more specific.

The airfield at Detling has become the Kent showground and due to the time of day I consider the possibility that the paragliders may well be paramotors, having taken off from the showground, and give it a slightly wider berth. I take my photo and then spot two paragliders scratching for lift on the south-westerly facing ridge before turning to seek out the mast at Dunkirk, near Canterbury. There's a modern mast at Dunkirk aiding location. The four Tx masts stood in row near the current mast with the four Rx masts in a square with the Rx block in the centre in the foreground of the photo.

“We transit past Lydd listening to two aircraft leaving the hold and joining the ILS”



Passing Canterbury on the way to Dover the current Swingate masts are visible, but due to the Notams in force I don't want to get too close or too low. Passing west of Dover I notice a huge anti-aircraft gun emplacement and photograph it as 529 Squadron were also used to calibrate the radar for anti-aircraft gunnery.

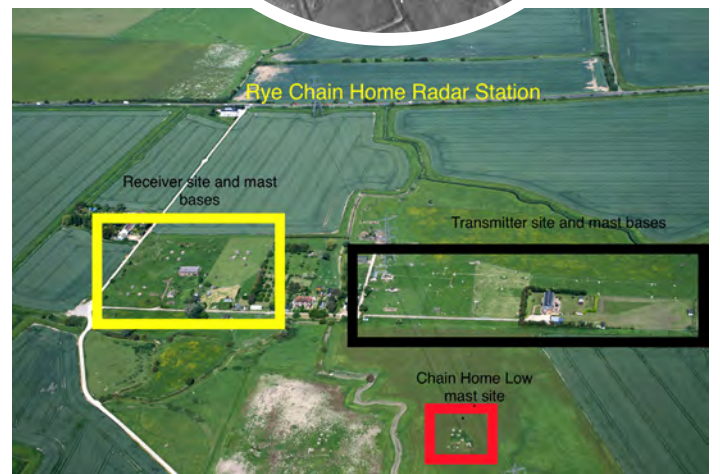
Looking for the airfield of Hawkinge, that famous stalwart of the Battle of Britain, I can only see houses and building sites. I just hope that the new names of the roads reflect what had occurred on the site 80 years previously. Lymyne is six minutes away although an industrial site now still has the vestiges of an airfield and runway.

Coming up quickly now is Dymchurch Radar but I'm not sure if I've identified the location correctly. We transit past Lydd listening to two aircraft leaving

Above left Swingate Radar, now with modern masts
Above Hawkinge Airfield, now houses
Above right Lymyne Airfield, now an industrial site
Below left Dymchurch Radar in centre
Below right Rye Radar during WWII
Bottom left and right Rye Chain Home Radar Station now

the hold and joining the ILS. I have them visually and on the traffic screen.

My notes have the radar station at Rye north-west of the wind turbine, under the power lines south of the road. Sure enough there it is and, incredibly, I can see how the sites were laid out. The site is linear. Looking inland, to the right is the Transmitter (Tx) site with four tower bases and their four corners visible which would have supported steel masts approximately 350ft tall. The Tx block looks like it has been converted to a house. In the middle of the site there's a pair of semi-detached houses and an orchard, and to the left the Receiver site with tower bases forming a square and Rx block in the middle. These masts were wooden and 240ft tall. In front of the site are the bases for two smaller towers which would have stood 80ft tall and provided Chain Home Low coverage. ▶





Eighteen miles to the south-west passing Hastings is the site of Pevensey Radar. A lull in the traffic enables slightly different photographic angles and once again it looks like the Tx block has become a house. Ford Airfield was next on the list and yes, it is still discernible as an airfield, and as we routed to the north of Bognor Regis, Tangmere aerodrome with Goodwood House behind were visible. Next target is Ventnor on the Isle of Wight.

My kneeboard has a large exclamation mark and 'TRAFFIC' written on it, and I'm looking for activity from Bognor gliding as well as for traffic for Goodwood and Bembridge. Sure enough there is traffic descending over the sea inbound to Goodwood. I can't see it on my traffic display so halt my climb. I spot him, he's above and fast, sure enough he passes safely overhead.

Everywhere is busy – the sky and the sea – and I tell myself that should I have to 'take a swim' that at least I'll be picked up relatively quickly... Directly east abeam Sandown with Ventnor spotted there's a problem. There's been an incident on the runway at Sandown and all inbound traffic is being advised to route to Lee-on-Solent. We give them a little more space and stay out over the water.

Ventnor Radar is easily identifiable as it sits about 800ft up and must be the highest point on the island. However, I couldn't see anything that clearly identified the site as Chain Home like Ryde or

Pevensey. Moving across the island I contacted Bournemouth Approach for a service remaining outside its CTR for a routing to Worth Matravers and St Aldhelms Head via Hurst Castle, Hengistbury Head and Sandbanks.

Just before Hengistbury Head I photographed the former location of Christchurch Airfield where 529 would often base themselves for their south coast taskings.

Sandbanks and Poole Harbour are suitably spectacular, but this is a busy corner so don't take pictures. I turn to the south-west and slow a little as we're flying into a cul-de-sac created by danger areas and looking for the village of Worth Matravers which was home to the Technical Research Establishment (TRE). This was a huge site occupying the whole headland of many square miles and 'most secret'. So secret in fact that nobody noticed it was covered in masts and wires. I'd found an early coloured image of the site when the receiver masts were just

being put up and in it is a distinctive looking house. I made locating the house with its unique roof windows my objective.

While trying to obtain the angle for the photo, Bournemouth ATC advised me that the danger area was very much 'LIVE' and could I make my turn to Wareham in good time? The building is identified, picture taken, and we make our turn. I had hoped to ask to cross to the Danger Area to obtain a photo of the installation at Tynham and the church at Steeple, but instead fly parallel to the danger area in the direction of Weymouth trying to pick out Ringstead Bay. The positions of the antenna bases are all overgrown and I can't recognise any buildings.

I started listening to Exeter Approach. I've been in the air about 3hr 10min now and I'm on schedule. We make our way along the coast looking for hang-gliders and paragliders and other aircraft enjoying the scenery. The coastguard and Navy are out as we pass

Top left Pevensey Radar with Rx site in foreground

Top right Ventnor Radar on top of the hill

Above right Worth Matravers had a huge site, as seen in this old photo

Above left Now there's this farmhouse on the site...

“As the wheels lift off the tarmac comms is restored with the tower – we’re on the home leg...”



Bridport. Passing Seaton we call Exeter. I’d telephoned from Rochester so they are expecting us to join from Sidmouth. Looking hard for traffic I try to get into a position for a photograph of something that can distinguish the Branscombe Cross Radar site.

As it turns out the picture isn’t too bad. Camera away, fuel transfer on, Exeter Pooleys plates swapped for the chart, radio frequencies queued up and I go through a mental rehearsal as Exeter is busy.

We position to join left base Runway 26, go to Exeter Tower and are requested to orbit left to deconflict with large inbound jet traffic. Tower informed the airliner of a ‘little autogyro orbiting left base’, to which the Captain replies, “I’ve got him on TCAS...” Good to know my transponder works! As my orbit comes around I am instructed to follow behind, happy in the knowledge that with our speed differential and crosswind there won’t be a wake turbulence issue. Informing the tower I’d like to refuel

Above Calling in at Exeter Airport, Kai found the US President’s Osprey tilt rotor helicopters in the queue for fuel

Below Branscombe Cross Radar site. Traffic behind meant Kai couldn’t hang around

before parking as I overfly the threshold, I’m given clearance to vacate at Charlie. I land at Charlie and immediately vacate heading for fuel. Engine running time 3:53 with 3:41 airborne – eight minutes ahead of schedule.

While waiting for fuel I chatted with the crew of another waiting aircraft which had been trying to reach Bodmin in Cornwall. Due to low cloud Bodmin was closed and they had to divert. The cloud was now lifting and if they could get fuel they could carry on to Bodmin. Due to the G7 Summit in Cornwall the previous week, the US Marines now wanted to go home, meaning that their four Ospreys and three Hercules transports were consuming Exeter’s resources and staff.

Rota Leg 3: Exeter to Chiltern Park.

After an extended delay on the ground due to the departing Americans, the call for start up occurs at 1540. We taxi via Charlie to hold at Delta 1, run up and, checks completed, call ready for departure. No reply from the tower. I wait and repeat the call, still no answer from the tower, but I am receiving all other radio traffic from the aircraft on and around the airport. Unable to move from the stop line without permission I call for the support of the ground vehicle which promptly arrives. After a short discussion, I request an ‘old school departure – lights or flares, please’. No, they can’t do that but how about lights on the tower? Perfect.

All systems on, transponder set. I call ready for departure and look to the tower not sure whether to see a person with a handheld light or something else. A bright green light illuminates above the tower windows and I throttle up **KBOJ** to line up on Runway 26. The light remains steady and green and I call that I’m pre-rotating with the intention to take off. As the wheels lift off the tarmac two-way communication is restored with the tower... 1607 local and we’re on the home leg.





Thirty minutes away on a heading of 200 is Prawle Point, a couple of miles west of Start Point. A few clouds indicate that Cornwall has had different weather today and the air is a bit more turbulent. The radar station at West Prawle, to all but the well trained eye, is a farm site and the buildings are just farm buildings, old and grey. The giveaway that this was a west coast Chain Home radar site is the 'E' shaped building next to the new barns.

There are other radar sites along the Devon coast but, as they are related to gunnery and radio direction finding, I'm trying not to be distracted by them and fly the task, the primary Chain Home stations of which we have two more. The first being Wotter on the south-west corner of Dartmoor above Plymouth.


Wotter and Downderry, our final radar stations, were serviced by 529 (Rota) from Roborough Airfield to the north of Plymouth and would later become Plymouth Airport. Flying past, rather than overhead to avoid the built up area and Naval Dockyard, the airfield looks in good shape and is crying out to be used.

Crossing the Tamar, you can't see Downderry because it's at the foot of the cliff and comes up quickly. I'm not expecting to find anything on the radar site as I know it was cleared in about 1969 and the land used for beach front houses.

Time to stay focused and alert as it's the best part of 160nm home and will take over two hours. Climbing up over the moor to route Princetown – Cullompton, we can see Wales clearly but the Bristol Channel looks like a glacier with the top of Lundy Island looking like a flat slab on the surface of the ice. I look at the Dunkeswell plate and tune in, just in case. Passing Yeovilton the weather is looking grey and colder and Wiltshire has a lowering cloud base to about 2,500ft. I don't think it will be an issue but see if my phone will connect to give me a forecast at home. Home is better, the cloud may be as low as 2,000ft around Marlborough but I've contingencies with

Top left West Prawle Radar – look for the E-shaped building
Above left Wotter Radar on Dartmoor
Right Roborough, now closed Plymouth Airport
Below Finished! Kai taxies in at Chiltern Park after a long day's flying

Lydeaway Field or Clench. If I'd been running late I thought I'd need a plan if I couldn't make it home. We passed Lydeaway at 1839 and Hungerford at 1852.

Nearly home, I called Benson for a MATZ crossing to the final waypoint at Crazies Hill, line up an approach and fly through at 1915, some 14hr 43 minutes since I departed. A few minutes later I'm on final 04 into Chiltern Park. Total time in the air 11hr 30min, total distance flown 783.7nm. Taxying in I'm met by Paul Adams and a cold alcohol-free beer... 



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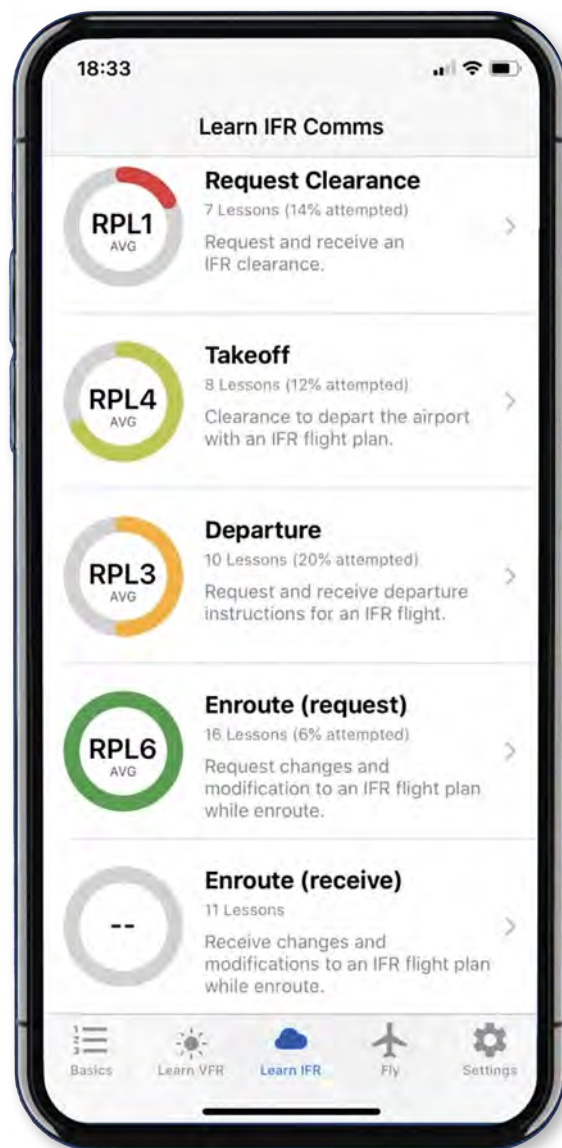


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Left The ARSim app from PlaneEnglish is US-centric but can be set to standard ICAO terminology. Text shows what the call should be. **Right** Lessons are split into sections of the flight

I've not been able to fly since last summer and I'm painfully aware that the first thing to suffer, when I eventually get back to flying, will be my RT. Happily, I've come across an app which may help that horrible stumbling first attempt to ask for a basic service.

PlaneEnglish's ARSim is a very clever app which provides you with the basics of number, vocabulary and phrases, then listens and tells you what you have got wrong.

In the settings menu you can specify an airfield (six in the UK) and you can also set up your aircraft call sign and choose between FAA and ICAO (beta) Phraseology standard.

I managed to get access to some of the more

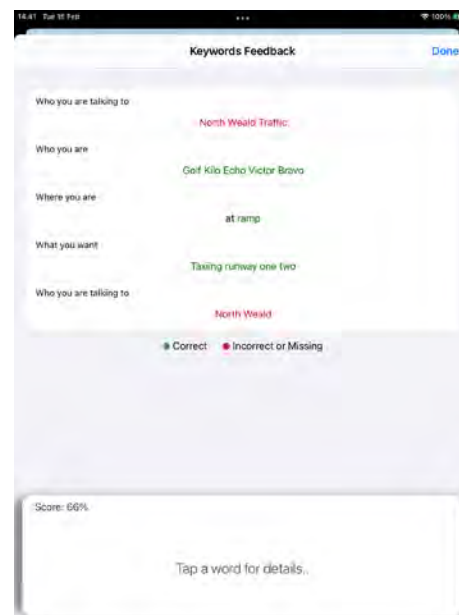
advanced scenarios. As I fly mostly day VFR I chose VFR-Taxi Out lessons to start with. Lesson one gave me a chart of my selected airfield (North Weald EGX) and instructions at the bottom.

'You are at Ramp. Announce to North Weald Traffic that you will taxi to Runway 12'.

On the right is a blue / red pulsing microphone symbol. Pressing that allows you to talk to the app. If you aren't sure what to say, below it is an eye symbol with 'RES' above it. Pressing that shows the correct response. You can simply read that out or attempt your own response.

I tried my own and the app kindly gave feedback on a sliding scale between 0 and 100.

Clicking 'show feedback' showed me I'd missed out



'North Weald traffic' (D'oh!). and I hadn't stated who I was talking to (North Weald, of course. Told you I was rusty...).

Pressing the blue / red pulsing right arrow moves you onto the next section.

The later lessons get harder, with much more information to pass back to ATC, just like in the real world. Having changed my airport to Ottawa (not all lessons are available at all airports) I had a real challenge with different taxiway instructions and a 'fast speaking' ATC voice. I must admit for some of these I knew I hadn't written them all down, so I was glad of the red ATC Eye, which shows you a written transcript of ATC's last transmission.

I tried other lessons, including an IFR En route Request and an IFR Landing request, both using Ottawa Tower. No matter how I clearly tried pronouncing 'Ottawa' the app's feedback still showed I had missed saying 'Ottawa' – and sometimes 'Ottawa Tower'.

This is a common problem with all speech recognition software I've used on an iPad. Generally, I

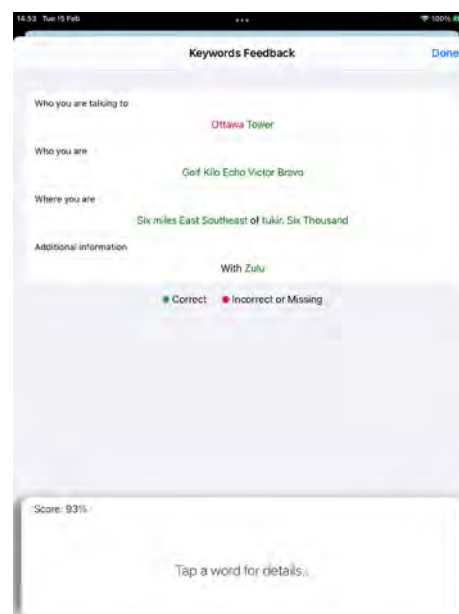
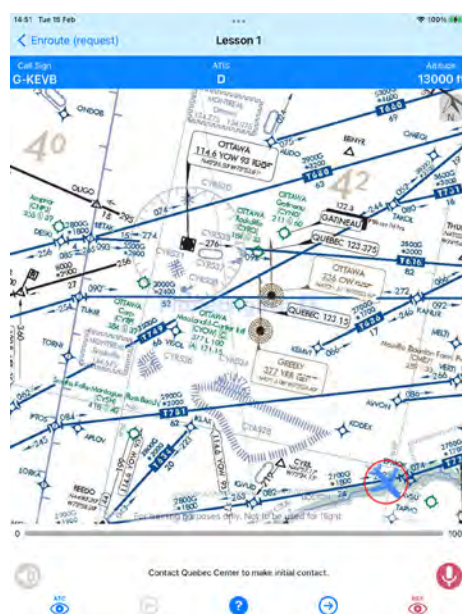
found the app worked well, understanding my voice most of the time. After a bit of practice, I found an improvement by pausing slightly between each word.

There is a seven days' free trial then the cost is split into VFR lessons, IFR lessons, or both, monthly, six months or annually from £9.49 a month for the VFR lessons only up to £93.99 a year for all VFR and IFR lessons.

You can also access tutorial videos [here](#) and see more about the app [here](#).

The developer says ARSim will soon include a digital and analogue representation of a physics-based Primary Flight display, which will provide users with flight information in the same way that they would get on the aircraft. Later expansions are planned, including the addition of more aircraft and PFD systems.

I liked this app. I think it would have been beneficial for me when I started my PPL 16 years ago, and it's useful to me now to clear those RT cobwebs away before climbing back into a cockpit and committing to a spot of aviation. **Peter Steele**



Top left Example shows aircraft parked at North Weald with instruction on the call to make

Top middle App listens to your call....

Above right ... If you make a mistake, the app highlights the error

Far left VFR and IFR versions are available, or both. You buy access to the modules you want on a time basis, ie, one month, six, twelve and so on

Left Feedback on your call... very patient

By Association

Looking after General Aviation The UK's flying associations at work

BMAA Importance of the Panel...

BMAA recently hosted a seminar for microlight instructors – the first one in-person since 2019.

The atmosphere was very positive with an agenda full of news and updates, including a detailed presentation of Differences Training and how microlight instructors should address the issue. The Microlight Panel of Examiners was also on hand to answer questions and give advice.

We welcomed 100 delegates, thereby representing half of all the microlight instructors across the UK. Instructors are directly appointed by the CAA, as are examiners and, by consequence, the Panel.

The BMAA supports its work by

producing and updating the NPPL syllabus and exams, even though these are ultimately approved by the CAA.

I overheard one conversation between an experienced microlight instructor and an SEP instructor with authorisation to instruct on microlights, where they were discussing the main differences between flying an Ikarus C42 and a Cessna 152.

Ignoring fuel consumption, rate of climb or even age of aeroplane, they focused on the last five feet of air beneath the tyres before touchdown.

Both agreed that you cannot simply assume you have the skills to land one type if you can manage to get the other down

– and statistics clearly show this to be the case. This brought home to me the importance of the Microlight Panel of Examiners for our fleet.

SEP instructors don't necessarily keep up to date with microlight training news. We will be reaching out to them in the future so that we can work together to maintain microlight training standards.

Rob Hughes



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You can find out how to fly a simple loop in a basic trainer or explore the intricacies of the lomcovak and tumbling flight in the very latest carbon monoplane. And all within an easy drive at one of the many aerobatic training schools in the UK.

We run several taster and entry level events, including the very popular Get into Aeros – this year hosted at Fenland

Airfield on the weekend 25-26 June, and now open to all age groups. If you already have some aerobatic experience and fancy a first go at competition flying with a safety instructor on board, then look out for the Club event at Little Gransden Airfield on Saturday, 28 May.

All our events are supported by our Preferred Training Partners which provide specialist aerobatic aircraft and instructors – look them up at [here](#). If you are already more experienced and want to compete then the 2022 calendar is available [here](#). Not sure and just want some information? Then contact us using the web form [here](#).

We are always happy to talk aerobatics. For just £25 you can also become a member for the year, help out at one of our contests or just keep updated with what is happening in the aerobatic community here and around the world. Smoke on!

Steve Todd



BRITISH AEROBATICS British Aerobatics
www.aerobatics.org.uk

LAA Fancy going solo for free?

Have you ever dreamed of going solo? Well now's your chance, but move quickly, because the 'window of opportunity' closes in just a couple of weeks.

This spring we've combined forces with flight equipment company Pooleys to offer a 'Spring Solo' pilots' bursary worth £1,500. It will give a student pilot the chance to reach their first solo this spring. All you need to do is answer, in 250 words (max), the question: "Why do I want to fly?"

There is a deliberately condensed selection

window, to get the lucky winner into the air soonest. Entries must be emailed to office@laa.uk.com with the heading 'Spring Solo', by a closing date of 31 March 2022.

A judging panel will meet in early April to select the best response, which means the winner can be in the pilot's seat right away.

The recipient will be able to nominate the flying school of their choice and the school can then bill us for costs of training up to the £1,500 limit. Any future flying or ground instruction, and the costs of medicals and licensing, will be payable by the student.

Most importantly, this competition is open to all, from any age or walk of life. The candidate doesn't need to be an LAA member and it is not just a 'young person's bursary' either. We already have long supported younger aviators via our annual Armstrong-Isaacs bursary. The 'Spring Solo' is aimed at a worthy beneficiary, regardless of age.

Steve Slater



LAA Light Aircraft Association
www.lightaircraftassociation.co.uk

THE FLYER CLUB



Look out for us this spring!

Dates for your diary


The list of events for 2022 is already filling up - where are you going?



There is, quite rightly, a lot of pent up demand among pilots at the moment for reasons to go flying, (some of us don't even try to find a reason!). If you're looking for inspiration this spring, there is nowhere better to look than the *FLYER* website. We've got a list of more than 120 fly-ins, airshows and other events throughout the year with more being added every week. If you suffer from FOMO it's worth saving the page as a bookmark in your browser so you've got easy access - almost like your own 2022 events quick reference handbook!

There will almost certainly be events you've not heard of (some are brand new), so visit the website and start planning. Getting plans in the diary is also a great opportunity to schedule your flying for our #FLY2022 campaign, supported by Bose. If you've not heard about it yet, we want as many people as possible to aim to fly 2,022 minutes throughout the year. We want to hear about your flying adventures, so let

us know when you've completed them and you might be in with a chance of winning some great prizes. It seems that many people are already working their way through the 33 hours and 42 minutes, which is great. Me? Embarrassingly, I'm still on zero... Once we're back in action, however, I'll be making the most of spring's weather!

A new spring is bringing change at *FLYER*, as we deliver a superb new way for you to consume our great content. The new *FLYER* website will make it easier for you to do everything; from reading features to finding your FREE landing vouchers and everything in between. If you want to read more about what's changing we've detailed it on page 68. We're excited about it and we know you will be, too! Safe flying to you all and we hope to see some of you out and about at airfields soon. 

jonny.salmon@seager.aero



Out & About

The weather is changeable, but the days are getting longer, and it looks like you've been having fun all around the country – and beyond! Thanks... keep the photos coming!



Julian Dow Flying with his son near Glasgow



Jon Canty Introducing someone to their first flight



Martin Handley In the circuit at Llanbedr



Anthony Tester Flying over Portsmouth



Chris Hall Spotting the Whalley Railway Viaduct near Clitheroe



Tim Cook Had a flight up the coastline on a sunny afternoon



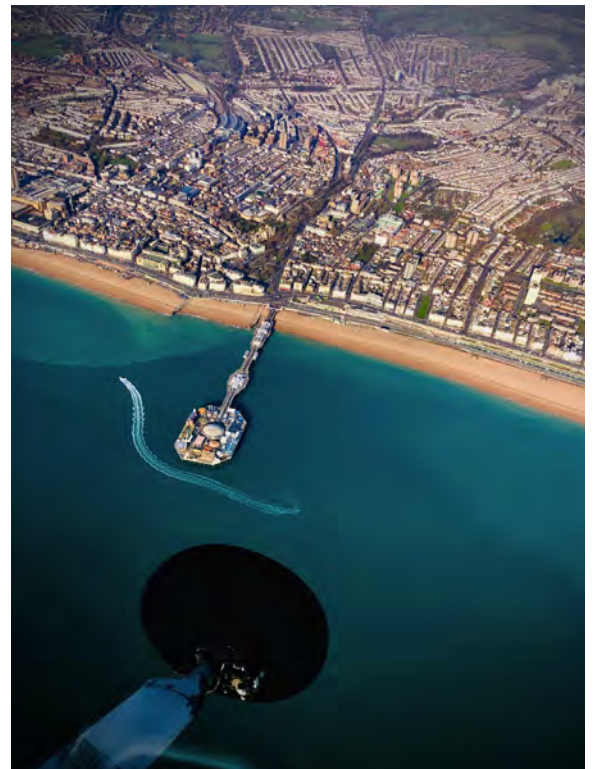
Jonathan Lee These were taken over Bottesford VRP at around 6500ft with a sea of cloud to the south



Steph Smith Testing out the Pipistrel Velis Electro



Liz Essex Checking out Silverstone



Richard Newell Overhead Brighton Pier a couple of weeks ago



Keir Williams at a breezy Popham



Mick Ward On his way to Beverley for lunch. Guess the bridge...

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Free Landings



If you're a member of **The FLYER Club**, [click here](#) for your personalised vouchers and save over **£21** by claiming one **FREE** landing at each of these airfields valid for May 2022, although not at an aircraft's home field. No jets. Please contact the airfield before setting off.

If you're not currently a member of the **FLYER Club**, but would like to receive new free landing fees every four weeks plus other Club member benefits, then [click here to join!](#)

Balado

07795 578072 | www.baladoairfield.co.uk

Balado Airfield near Kinross is set over 100 acres of land and contains three grass runways and one mixed concrete/grass, hangarage, control tower viewing platform and a lounge/catering accommodation for visiting pilots. Primarily a microlight site, the airfield has fixed-wing and three-axis microlights based there. PPR is essential for briefing and fuel is available by arrangement.

Nearby attractions Hill walks and cycle rides around the Lomond and Ochil Hills, as well as Loch Leven.
PPR 07795 578072
Radio 118.605

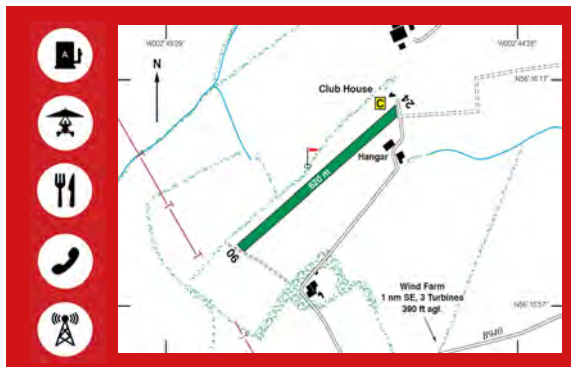


Kingsmuir

01333 310619 | kingsmuirairfield.com

Kingsmuir (Sorbie) Airfield and owners the Smith family welcome singles, light twins and microlights with PPR to its unobstructed, unlicensed, 620m grass runway. Visitors can enjoy tea/coffee in the Clubhouse (weekends only). Contact Leuchars Approach

Nearby attractions St Andrews, with its golf course, university and Scotland's Secret Bunker, plus picturesque fishing villages.
PPR 01333 310619
Radio 135.480



Radio

Accepts non-radio light aircraft, but PPR



PPR

Prior permission is required



Refreshments

Including restaurants and cafes etc



Microlights

are welcome



Fuel

Aviation fuel available
A avgas, **UL** UL91,
M mogas

While you're there

When you visit these airfields, why not show your support by enjoying a meal in the cafe or filling up with fuel? It's good to support GA in the UK.

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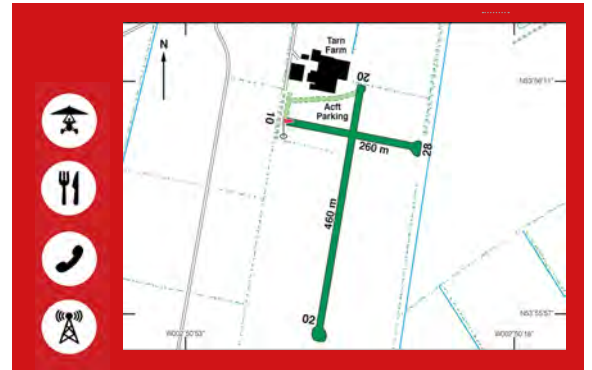
Free Landings are for **FLYER** Club member use only – click here to join!

Rossall Field

01253 790 522 | www.attitudeairsports.co.uk

New to the list of **FLYER** free landing vouchers, **Rossall Field** is 8nm south of Morecambe and is run by the friendly James Walker of Attitude Airsports. The airfield is predominantly microlights and has two runways of 260m and 500m in length.

Nearby attractions Lancaster and its castle are a few miles away, with the Lake District a short flight to the North.
PPR 07961 398164
Radio 129.830



Yatesbury

07836 554554 | www.wiltsmicrolights.com

Yatesbury Airfield is home to the Wiltshire Microlight Centre, a BMAA-registered school run by qualified instructors who ensure training is safe, progressive and fun. Training takes place about the stunning North Wessex Downs and Vale of Pewsey. Visiting pilots should approach from the south, circuits at 600ft. Visit the website for pilot information. Blind calls on SafetyCom and call for PPR. Microlights only.

Nearby attractions The countryside around the strip is truly spectacular.
PPR 07836 554554
Radio 135.480



Win!

A print and digital *Pooleys UK Flight Guide*

QUESTION: What is the distance between Balado and Yatesbury in nautical miles?

To enter, post your answer, name, address and email details to

Pooleys May Competition, *FLYER* magazine, PO Box 4261, Melksham, SN12 9BN or send an email to competitions@seager.aero
 The closing date is 6 May 2022.

The winner's name and address will be passed to Pooleys, then deleted from Seager's database. Pooleys will send the winner their prize and, in order to do so, also offer to supply them with further information about the company's products and services.

The winner for March 2022 is:
 Oliver Osborne, Epping, Essex.



- 1 Balado
- 2 Kingsmuir
- 3 Rossall Field
- 4 Yatesbury



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Join us – and save £22!

We're incredibly excited to reveal that *FLYER* will be moving to a purpose-built digital platform offering members our great content in a superb and easy-to-consume way. If you're not a member – come and join us!

What's happening?
 We're significantly improving the way you consume our content. We'll be unveiling a brand new website where all our content will be available to read and watch in beautiful clarity on any device. Members will benefit from a single sign-on across the whole platform (website, forum, *FLYER* Club). Although we'll be delivering a digital magazine every four weeks, we'll also be releasing great new aviation content every single day.

We'll be opening up the new *FLYER* for free to everybody for the first month, beyond which new membership levels will begin. The full membership level will be available for just £1 per week, but you can save £22 by joining today, ready for the new future of *FLYER*!

How much?

We're introducing three new tiers that will give

increasing levels of access to the website content, forum and exclusive member benefits.

Basic: access our Learn to Fly Guide content and limited news, plus basic forum access. Free.

Reader: access all our usual content, with new items uploaded every day. Join as a reader for £30.

Club Member: access to everything. All the content, exclusive member content like videos and webinars, plus discounts, landing fees and fly-ins.

Join as a Club Member for £52 after the first month. Alternatively, join now and we'll give you a year's access to everything for just £30.

Existing members will be held for the first full year at £30.

How can I get involved?

Just sign up to the *FLYER* Club today for £30/£7.50 per quarter and you'll automatically have access as soon as the new look *FLYER* launches – it really is that simple! Join today at flyer.co.uk!

Join the Club – it makes sense

If you're not a member of The *FLYER* Club and you're thinking, 'How do I join? Right now. This instant...!'

Well, good news, it's easy. Just [follow this link](#), complete the simple form, decide how you want to pay and start enjoying the **benefits** instantly.

Member benefits

- Extensive *FLYER* back issue library

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- £10 off when you spend £40 at Transair (excludes Bose headsets)
- 10% Spitfires.com Simulator sessions
- 15% off an Ultimate High Top Gun Experience
- Free copy of *A View from the Hover*
- Get your club membership paid by Stein Pilot Insurance
- An initial conversation with Dr Frank

Voeten, FAA & EASA AME

- Twice-weekly General Aviation weather briefings
- FREE Landing vouchers, available through the [FLYER website](#)
- Exclusive written content from our archives – first pieces now published.
- Interviews with experts on a number of key topics.
- Our first members' Fly-in was a success! More events soon!

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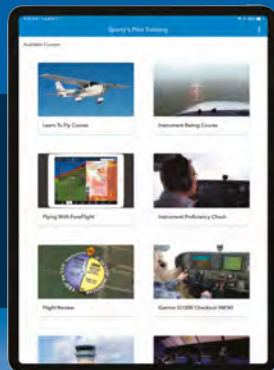
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NEXT MONTH'S ISSUE

Available from
12 April.

QSY

For the funny, the weird, the wonderful and the just plane strange...



Aspiring pilot? Here's a host of flying opportunities

It's the start of the flying season and a perfect time for would-be pilots to try flying. There are a host of free opportunities out there, including:

■ A total of 24 'taster' flights this summer with The Aviatrix Project for both male and female aspiring pilots aged 14 and upwards.

The Taster Flights are with Take Flight Aviation at Enstone Airfield in Oxfordshire, and Flying Made Easy at Old Buckenham Airfield in Norfolk. The flights must be taken between July and September 2022.

Deadline for applications is 12 noon on Monday 18

April 2022. Winners will be announced in May 2022.

[Click here to apply.](#)

■ Aerobility has opened applications for its Junior Aspiring Pilot Programme based at Blackbushe Airport for young people aged 12-18 years living with a disability. The course takes place over four sessions between 11-21 April 2022 offering both ground school and the chance to take to the skies in one of the charity's aircraft – funded by BBC Children in Need. [Click here for info.](#)

■ A one-off prize of £1,500 to assist a student pilot, of any age, to fly solo has been announced by the Light Aircraft Association (LAA) and flight equipment company Pooleys.

All a candidate needs to do is answer, in 250 words, the question: "Why do I want to fly?" The best response will secure the pilot the bursary. Hurry though, the deadline is 31 March. Apply by email to office@laa.uk.com, with the email header 'Spring Solo'.



Fly a Lysander

There are few aircraft that truly deserve the term 'iconic'... Spitfire, Hurricane, Mustang definitely. The Aerial Collective at Duxford believes the Westland Lysander is another and now they are offering flights in one.

"Following a detailed safety briefing at our hangar facilities, you will join one of our seasoned pilots within our pilot's hut and on-airfield private viewing area," said the Collective. "Strapped in, you will be facing rearwards and towards the tail of the aircraft, making the most of the Lysander's large canopy and the views out across the English countryside passing below."

Prices start from £4,500.

[Click here for more info](#)

Cadets gets wings

Countrywide 14 sea cadets were awarded Bronze Wings at a special awards ceremony in Weymouth, Dorset in March.

The awards follow the cadets' successful completion of the Aviation Foundation Course, and included subjects like principles of flight, how to navigate an aeroplane, air engineering, meteorology and aviation law. The course was set up by the Royal Navy to offer cadets an opportunity to take part in a Flying Scholarship programme.

Ordinary Cadet Poppy Richardson, below, from Bristol Knowle won the top place on this year's course, while Able Cadet Amelia Harrison from Kettering won the most improved student award. www.sea-cadets.org



Heroes & Villains



HERO Ukrainian Air Force pilot Colonel Oleksandr Oksanenko, nicknamed 'Grey Wolf', gained international fame as the Su-27 Flanker display pilot

taking part at various European airshows, including the UK's Royal International Air Tattoo

(RIAT) in 2017, when he won Best Overall Flying Demonstration. He retired from the air force in 2018 but returned to active duty to defend Ukraine when the Russians invaded... paying with his life after his jet was shot down near Kyiv, the Ukrainian capital.

VILLAIN A JetBlue pilot, 52, was removed from the cockpit of a flight and taken into custody in the US after having a blood-alcohol level more than four times the limit for pilots. He said he had seven to eight drinks before boarding the aircraft.

Send your QSY submissions to QSY, PO Box 4261, Melksham, SN12 9BN or to qsy@seager.aero

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