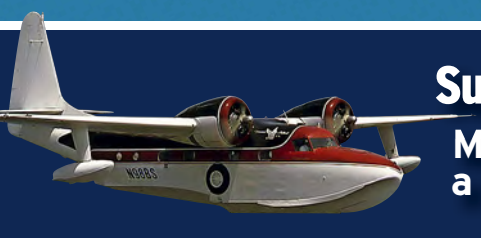

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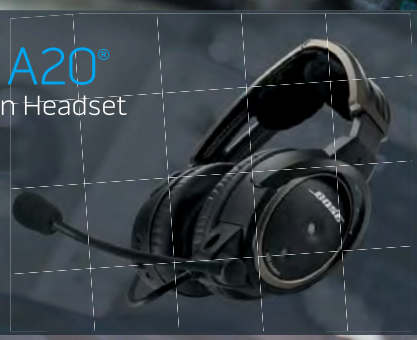

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Unlatching the rack

Do you remember the Red Tape Challenge and those heady days when we were consulted about general aviation regulation and actually seemed to have been listened to? Remember the promise of a 'light touch' and the way in which the CAA really did start to roll back what we all thought was over-regulation?

At the time I saw it as a sea change – but the cynics among *Pilot's* editorial team were not convinced. I think we are still heading in broadly the right direction – there has been a steady flow of good news in the form of the weight limit for deregulated aircraft being raised to a far safer minimum and the requirements for prototype testing being eased, all reported previously in this magazine – but there are signs that in other areas officialdom is returning to its old ways. Just take a look at this issue's 'Airmail' pages if you doubt me. As Scott Pendry of the Air League writes, 'only a few years on from the conclusion of the GA Red Tape Challenge, there are still pressing issues to discuss and raise with government. Put simply we – and I mean the whole of the GA community coming together – need to hold the government's feet against the fire'.

We all understood that a review of air display safety was essential following the Shoreham Hunter accident. However, we expected any consequent change in regulation to be commensurate with the risk – put simply, one set of rules for the large, fast and complex types that clearly posed a hazard and another for the small 'low-energy' aircraft familiar to most *Pilot* readers.

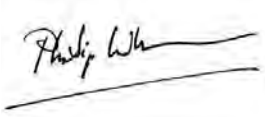
Sadly, this has not happened and the CAA continues to treat small displays with a heavy hand. I have received a copy of an email to air display team members from their Flying Display Director (FDD). It is about one particular event but could apply to any one of the many small air displays that take place – or used to take place – all around the UK. He starts by saying that he has 'had a long chat with the show organisers... The upshot is this: after our discussion, the committee are (quite rightly) considering cancelling the flying display.

'The main problem is a question of timing: bizarrely, the display documentation must be submitted well ahead of the event but the CAA's very late implementation of the new FDD qualification rule means that the applicant (me) is effectively unqualified. This makes a complete nonsense out of the requirement to be trained in, amongst other things, display application documentation. This might also mean that the application is rejected as it may not comply with the (as yet) unseen training!

'Furthermore, there is no guarantee that I will even be allocated a place on the course, which is scheduled to take place just a few days before the show. And, there is also no guarantee that I will pass (*stercus accidit*). I agreed with the committee that there are just too many holes in this block of CAA cheese and it is too much of a risk to invest over £2,000 in a display that requires every single planning element to be word perfect in advance of the mandated training.

'In the meantime, I have applied for a place on the course and, unless the CAA conjures up another master plan, we might be good to go next year.'

Depressing reading, I think you will agree. The trouble is that regulation works rather like a ratchet, the pressure mounting with every notch clicked. We need to get our hands on the release latch again!



Philip Whiteman, Editor

A request: Have you an 'I Learned About Flying From That' story you'd like to share? We would welcome more submissions and pay on publication a modest fee that might buy you some welcome flying time.

COVER IMAGE: KEITH WILSON

Crete2Cape Rally p34

ON THE COVER

Florida Flying Adventure p46

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REGULARS

FEATURES

Pilot Notes

The latest news from the world of general aviation

Young Eagles' 25th year
The US Experimental Aircraft Association is to mark a quarter century of introducing 8-17 year olds to GA at AirVenture **p.8**

Tecnam Traveller to make Friedrichshafen debut

Tecnam's P2012 Traveller commuter aircraft will make its public debut at Aero '17 in Friedrichshafen from 5-8 April. The prototype will take a break from its test programme to appear at the 25th anniversary of the German sport, general and business aviation show. "The opportunity to present our latest design is very exciting," says Walter Da Costa, Tecnam Global Sales & Marketing Director, adding that the company hopes to achieve certification for the eleven-seat, 2 x 375hp Lycoming piston-engined twin by the end of 2018.

Aerobatics Champion awarded Brabazon Cup

"Genuinely humbled" modest Emily Collett

British Advanced Aerobatics Champion Emily Collett has been awarded the Brabazon Cup by the British Women Pilots' Association (BWPA) in recognition of becoming only the second woman ever to win the title. BWPA has also acknowledged her achievement of being one of three women to represent Team GBR in international aerobatics competition and her ongoing work to promote the sport to young women.

"I expected to be presented with a certificate for a flying scholarship. However, I was surprised to also receive the Brabazon Cup!' said Emily. "I am genuinely humbled to have received it, and even more so by all the kind words that people have posted in response to my winning the trophy."

Lord Brabazon of Tara donated the cup to the BWPA in 1959, to be awarded annually to an individual for an 'outstanding achievement in aviation'. Past winners have included Diana Britten, Captain of the British aerobatic team and the first female National Champion, Polly Vacher of Wings Around Britain, and Caroline Gough-Cooper, two-time Gold Medal winner in the Helicopter World Championships.

Diamond introduces Garmin G1000 NXi cockpit

Diamond Aircraft Industries has introduced the next generation Garmin G1000 NXi integrated flight deck to its piston-engined DA40 NG and DA42-VI/DA42 NG and DA62 twins. The NXi uses the same basic user interface as the G1000, but adds a number of improvements that include modernised graphics, more powerful processors for faster and smoother map rendering, new LED backlighting, and new digital moving maps for both IFR and VFR flying. Retrofits will also be available for these models.

Diamond Garmin NXi fleet

Diamond DA40 NG

An American 'takeaway'
...for the Chinese, who have ordered fifty Piper Archers, to be made at Vero Beach and assembled in China for distribution to schools **p.10**

President Paul's house
Aircraft Spruce honours another famed US president by opening to the public the former home of EAA founder Paul Poberezny **p.10**

Sponsored PPL training
Now *that* got your attention, but you will have to be quick! applications for HCAP flying scholarships close on 22 March **p.13**

Relentless progress
...or not: certification of Bell's helicopter by that name is held up pending the NTSB report on a fatal flight testing accident **p.16**

World Individual and Team Golds for British Gliding

Britain's Russell Cheetham is the new World Open Class Gliding Champion. He secured his victory and a first World Gliding Medal to go with his two previous European Championship victories after a dramatic final day of competition at Benalla in Australia, and was joined on the podium by team mate and double World Champion Andy Davis who finished in the Bronze Medal spot.

And a strong all-round performance saw the six-man British team, who were competing across all three classes, win another World Team Cup. Mike Young took his third World Championship Medal by finishing third in the 18m class, with team-mate and two-time World Champion Steve Jones placing seventh. In the 15m class, Derren Francis finished sixth in his first World Championships.

Both British medal winners in the Open Class flew consistently throughout the marathon competition, where the daily courses ranged from about 200km to more than 750km, with both Cheetham and Davis going into the final race having finished in the top ten in all but one race. Russell's 19th place in the final 302km race, coupled with his earlier lead, was sufficient so see him take Gold. "It's something that I have planned to do for my whole career," he said. "I was fourth in the last two World Championships, which was very disappointing, so I'm really happy to have gone one better and gone straight to the Gold. It was unbelievably close and I really have to thank Andy my team-mate. He has been brilliant the whole time. When we come to these events we fly as a team. This is our second Championship flying together and the result proves that it works."

World Open Class Gold Medal winner Russell Cheetaham with Bronze winner Andy Davis

Fly2help Gala Dinner

Fly2help's Gala Dinner 2017 will be held at the RAF Club, Piccadilly on 3 May. The evening will include a champagne reception in the Churchill Bar, followed by a three-course meal with unlimited wine in the Club's ballroom. There will also be an auction whose prizes in the past have ranged from an Aardman one-off sketch of 'Shaun the Sheep' to a week's stay in a chateau with flights to and from in a private business jet.

'The evening allows plenty of networking opportunities, and the 140 guests make an interesting gathering of the aviation community,' says fly2help. Tickets cost £160 per head and corporate tables of twelve are available. Contact Katy Burke on tel: 01285 770821.

HAA launches strategic review

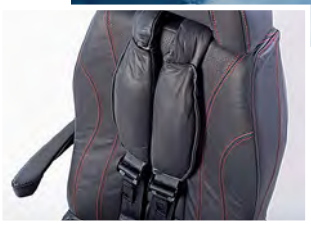
The Historic Aircraft Association has launched a comprehensive review of its aims and objectives, membership composition and management structure. 'This process will provide the Association with a new focus, after becoming somewhat peripheral since the CAA took over responsibility for air show safety and pilot display approvals,' the Association says. 'In recent years, since the HAA no longer had the 'teeth' it possessed when established in 1979, it had become less effective at promoting and protecting the interests of CAP632 Ex-Military aircraft owners and operators.

'To accomplish a thorough appraisal of what the HAA ought to be providing its members and to encourage warbird owners to be part of the association, the HAA has appointed six eminent aviators drawn from the historic aircraft world to act as a Strategic Review Task Force, taking a hard look at the needs of stakeholders in the historic aircraft community that is increasingly suffering from burdensome regulation and escalating costs imposed by the CAA.

'The historic aircraft community has been under threat of decline for some years but draconian measures arising from the 2015 Shoreham accident have driven owners to sell off their aircraft, threatening further decline in this important part of Britain 's aviation heritage. The HAA acknowledged that it was no longer meeting the needs of the historic aircraft community, and display pilots particularly were concerned that their professional voice was being ignored. Proper representation is required if the historic aircraft community is to survive and the HAA concluded that a top-to-bottom overhaul could bring about a fresh association encouraging stakeholders to band together and have their voice heard at Government and CAA levels.'

The Strategic Review Task Force comprises experienced display pilots Air Marshal Cliff Spink, Phil O'Dell, Roger 'Dodge' Bailey, aircraft inspector and test pilot Phil Hall, and Edwin Brenninkmeyer, owner and pilot from the Gnat Display Team.

First 2017 Daher TBM 930 delivered



On 30 January Daher delivered the first 2017 model TBM 930, which incorporates new equipment and cabin outfitting. The Elite Package interior includes optional AmSafe Seatbelt Airbag in the cockpit's four-point seatbelts that, when triggered, deploy up and away from the occupant, providing protection to the head, neck and torso (photo inset). For passengers there is a redesigned cabin with new seat cushions, headrests and armrests in a choice of three colours. Cabin temperature controls are now backlighted, and passengers have access to high-power USB charging ports installed on the cabin's left and right sides. Also in the cockpit are a new digital hour meter for flight time tracking and three high-power USB charging ports.

Cockpit equipment includes Garmin's new GTX 345 transponder, configured with ADS-B 'In' compatibility. Features that previously were options and are now included as standard on the 2017 TBM 930 include a stick shaker linked with the Under Speed Protection (USP) system, and the Flight Stream 210 gateway that enables wireless connectivity for two mobile devices running the Garmin Pilot app.

"We're always devoted to delivering the best in terms of design and technology for customers, and the TBM 930 Model Year 2017 is no exception," said Nicolas Chabbert, Senior Vice-President of the Daher Airplane Business Unit. "This year, the focus is on continuous improvement through features that bring additional safety and even more passenger comfort:"

In 2016 Daher delivered 54 TBMs, two-thirds of which were TBM 930s. The remaining deliveries were of the TBM 900 configuration, equipped with Garmin's G1000 all-glass avionics suite.

North America remained the lead market with 41 TBMs going to customers in the United States and Canada, while ten went to European buyers: four in the UK, two in France and one each in Germany, Italy, Poland and Switzerland.

Young Eagles' quarter century

This year marks the 25th anniversary of the Experimental Aircraft's Association's Young Eagles programme, which has introduced more than two million young people aged between 8-17 to private flying since it was launched in 1992.

To celebrate, the EAA has planned a variety of events and activities throughout the year beginning with a special 25th Anniversary exhibit in the EAA AirVenture Museum in Oshkosh. The exhibit will share the history and impact of the Young Eagles programme through photos, videos, and interactive displays. At AirVenture Oshkosh (24-30 July) there will be a 25th birthday cake celebration, and anniversary T-shirts and hats will be available. As a special thank you to pilots who fly Young Eagles during this anniversary year, the EAA has created a commemorative prop card and a set of decals, and a special '25 for 25' pin will given to pilots who fly at least 25 Young Eagles during 2017.

Guernsey-based company aims to launch 'Uber taxi of the air'

An air taxi service whose passengers would book via an Uber-style app could be operating soon if it secures an Air Operators Certificate. Guernsey-based Waves Technologies Limited says it is "confident" that it will have a functional inter-island service by the summer, funded by a group of local private equity investors.

Operating 10-14-passenger Cessna Grand Caravan EXs, it will be aimed at business and leisure travellers, and will initially offer trips priced at £45-£75 between Guernsey, Jersey and Alderney – sometimes running as frequently as four times hourly – before expanding to Southampton, Northern France, Spain and Italy by 2018. The company proposes three different flying options: scheduled services, which are booked via iPhone or Android apps or by telephone; scheduled private flights, for which individuals can pay to release the excess seats; and off-schedule flights, which would allow passengers to choose a destination and have their costs reduced if other users wish to join the flight

Waves Chief Executive Nick Magliochetti says, "I had conversations with over 1,000 people about what they like about the island, what they don't like and their pet peeves – and about 998 all said 'transport'. The people are naturally frustrated with... the schedules they're offered.

"We're trying to reengineer the way people travel. [In] the time it takes to get from Guernsey to Jersey, you haven't even walked through security. We'll be offering a fully on-demand service... It's a point to point carrier, which takes advantage of technology."

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Chinese order American takeaway from Piper

Piper Aircraft has received an order for fifty Archers from its Beijing-based China dealer China Air Shuttle. Deliveries will start in the second quarter of this year, totalling thirty by year's end, with the remainder scheduled for delivery in the first half of 2018. China Air Shuttle also intends to order more trainers to meet the fast-growing flight training market in China.

The aircraft will be manufactured at Piper's Vero Beach, Florida factory, and then shipped to China where they will be assembled/reassembled by China Air Shuttle's affiliate company in Rizhao, Shandong Province. They will then be distributed to flight schools and general aviation operators throughout the country.

"We have increased our presence in the Asia-Pacific region [and] as a result of our efforts we are delighted with the increase in fleet sales to Indonesia, Australia and Malaysia," commented Simon Caldecott, Piper Aircraft President and Chief Executive Officer. "We continue to see a growing interest for our trainers worldwide with almost 150 currently on order."

EAA founder's home a tourist attraction

Aircraft Spruce & Specialty Co has purchased the former home of Experimental Aircraft Association founder Paul Poberezny in Oshkosh, Wisconsin, and will open it to the EAA for tours and special events. The original stone farmhouse is over 100 years old and was Paul and his wife Audrey's home from 1991 until his death in 2013. Located near Wittman Field, it hosted many of aviation's leaders and icons, and countless aviation artefacts and photos representing the relationships and events that shaped Paul's life are on display throughout the home, providing insight into the lifetime passion and vision of one of aviation's greatest leaders. 'This is where Paul built airplanes, read about aviation history, and wrote countless letters and articles. As he often said, "There isn't a day that goes by that I don't say the word airplane," the new owners report.

Forty-five years of Citations

On 30 January Cessna celebrated the 45th anniversary of delivery of its first civilian jet, a Citation 500 for American Airlines' in January 1972, where it was used for the pilot training programme. Since then the company has delivered more than 7,000 Citation models, with the worldwide fleet amassing a joint total of nearly 35 million flight hours. There are currently eight Citation models in production: Mustang, M2, CJ3+, CJ4, XLS+, Latitude, Sovereign+ and Citation X+. In development are the super-midsize Citation Longitude and large-cabin Hemisphere.

3Rs Air Race schedule

Prospective handicap air racers and spectators should make a note of the RAeC 3Rs schedule just published:

22 - 23 April	Leicester	15 - 16 July	Abbeville
13 - 14 May	Teuge (Holland)		(France)
		12 - 13 August	Shobdon
3 - 4 June	Llanbedr	2 - 3 September	Beccles
24 - 25 June	Sherburn	23 - 24 September	Alderney

60 AIRFIELDS

In January the sound of the bagpipes at **London-Biggin Hill Airport** marked a **revival of the famous 'Caledonian Girls'** of British Caledonian Airways in aid of charitable causes. A Piper Archer painted in the colours of the former international airline, which had strong Scottish links, was named *Julie – the Spirit of BCAL* in memory of former staff member Julie Washington who was based at its Heathrow Transfer desk for many years, and died of cancer last year.

More than 100 former staff members of the airline attended the event, including ten 'Caledonian Girls' in their original bright tartan uniforms on their first official reunion for a decade. The Archer was funded by Robin Washington in memory of his late wife, engineered by Falcon Flying Services and painted in BCAL livery by RAS Completions, both based at Biggin. It will be used to raise funds for two charities that are close to the BCAL group: The Phyllis Tuckwell Hospice in Farnham, where Julie Washington was treated, and The Golden Lion Children's Trust, formed by BCAL staff members in the early '70s by a voluntary team that provides help and support for distressed and disadvantaged children. Early fundraising in support of the launch in January saw cheques for £3,800 handed over to the hospice and £1,500 to the Golden Lion Children's Trust.

The 'Caledonian Girls' mark the naming of the Archer and launch of a new era of fundraising for the charities. At extreme right is the aircraft's owner, Robin Washington, and next to him Alastair Pugh, CBE, former Managing Director of BCAL

Unst Airport (EGPW) in the Shetland Islands has been **permanently closed** and is now being used for non-aviation purposes. Formerly known as Baltasound, it was the northernmost airfield in the UK, and was built by the Royal Engineers in 1968 for the transfer of workers to offshore oilfields. Loganair B-N Islanders operated commercial inter-island flights and provided air ambulance services, and flew DHC Twin Otters (later DHC Dash-7s) on contract to the Chevron oil company, ferrying workers to and from Aberdeen, while Bristow's Helicopters' Sikorsky S-61Ns helicopters flew between Unst and offshore oil rigs. In its first year of operations Chevron made 6,000 flights and carried 50,000 passengers to and from Unst.

Ultimately, the oil companies concentrated their operations at Scatsta, the Scottish Air Ambulance Service switched to helicopters, Loganair, which had been subsidising its inter-island services from the air ambulance contract, withdrew, and the airfield closed to all but occasional business/commercial flights and private traffic in 1996.

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FLIGHT TRAINING

L3 Technologies' **L3 Commercial Training Solutions (L3 CTS)** unit is partnering with Surrey County Council to build a **new airline training centre**, and a production facility for aircraft simulators. The new training facility, to be named L3 London Training Center [sic], is scheduled to become operational in the second quarter of 2018. They will have a combined volume of more than 150,000 square feet and occupy a five-acre site **near London-Gatwick Airport**.

The London Training Center will be equipped with eight RealitySeven full-flight simulators, fixed-based simulators, briefing rooms, classrooms, meeting rooms, and a restaurant. The production facility will provide manufacturing capacity for thirty simulators per year and will include office space for more than 300 employees.

"We are very excited to announce this significant milestone for L3 Commercial Training Solutions," commented Michael T Strianese, L3's Chairman and Chief Executive Officer. "Our Center of Excellence will provide increased airline training capacity for our customers around the globe, as well as serve as an economic development catalyst for the London Gatwick area and drive continued sales growth.

The Honourable Company of Air Pilots is inviting applications for its 2017 Scholarships programme. Several Fixed-Wing Flight Instructor Certificates will be awarded, sponsored by the Swire Charitable Trust, the Air Safety Trust and the Air Pilots' Trust. The closing date for applications is 22 March. Private Pilots Licence Scholarships take successful candidates through to licence issue. These are funded by benefactors who include Air BP, the Cadogan Charitable Trust, the Foyle Charitable Trust, members of the Company, the Company's Air Pilots' Benevolent Fund and the Air Pilots' Trust. Candidates must be aged over the age of 17 on 1 June 2017, and the closing date for applications for these awards is 14 March. Gliding Residential Scholarships will be available with funding provided through donors who include Virgin Atlantic, the Air Pilots Flying Club and several Company members. Training will be carried out at a British Gliding Association-approved centre and will consist of week-long courses to be flown during the school summer holidays. Candidates must be over the age of sixteen on 1 July 2017.

Closing date for these applications is 29 March. Application forms for all scholarships are online at: airpilots.org/career-matters/scholarships/flying-scholarships-2017/ and further information can be obtained on tel: 020 7404 4032, email: *office@airpilots.org*

Textron Aviation's **Cessna Pilot Center (CPC) network added 24 new partner flight schools in 2016**, including five international facilities in Argentina, Canada, Colombia, Germany and Poland. The network now totals 163 flight schools, and Textron plans on further growth and expansion.

Staff from the Romanian Aviation Academy collecting their P2006T from Tecnam's Capua base in Italy

"The CPC network makes up the world's largest and most experienced flight training team," said Doug May, Vice-President, Piston Aircraft. "Our commitment to supporting new pilot education and flight training is evident in the enthusiasm we see from our partner flight schools. Throughout 2016 we saw significant growth to the network and we are excited to continue that momentum into [2017]. More pilots come to CPCs than any other network of flight schools to get their wings. The network continues to grow and find new opportunities to better support the flight training community."

For more details of the CPC network visit *www.newcpc.com*

Finnish commercial flight training operator Patria has ordered **six new Diamond aircraft**: four DA40 NGs; one DA42-VI twin; and two Flight Navigation and Procedures Trainer (FNPT II) simulators. The first simulator will be delivered to the company's new training centre at Tampere-Pirkkalain in April, followed by the first DA40 NG in June. Patria will operate the new aircraft alongside nine Tecnam P2002JFs for national carrier Finnair's Multi-Crew Pilot Licence (MPL) cadets' training.

Ethiopian Airlines is also expanding its Diamond training fleet with **five new DA40 NGs**, bringing its fleet to sixteen DA40s and two DA42 twins. The contract includes an option to order more DA40 NGs before the end of 2018. Ethiopian is currently implementing a fifteen-year strategic plan called Vision 2025 that aims to make it the leading aviation group in Africa.

The **Romanian Aviation Academy** (RAA) has **selected the Tecnam P2006T** twin as part of its training fleet expansion plans. RAA has already trained 4,000 pilots and currently operates a fleet of twelve fixed-wing aircraft and four helicopters.

Bell Model 525 Relentless still awaits certification

Relentless delay

Bell Helicopter has confirmed that there will be a delay in the certification test programme of the Model 525 Relentless, pending the US National Transportation Safety Board's report on the accident to one of the test helicopters on 6 July 2016 in which two Bell test pilots died. Two other flight test Model 525s, which have remained grounded since the accident, are being upgraded to production standard so that flight testing can resume quickly, and two more airframes are in final assembly. Larry Thimmesch, Bell Vice-President of Sales and Business Development, says that the certification programme has been extended by two years, with Federal Aviation Administration approval now expected at the end of 2018.

12,000 Robinsons delivered

The 12,000th Robinson helicopter rolled off the company's Torrance, California production line on 23 December. R66 serial number 0763 will be shipped to the manufacturer's South African dealer Hover Dynamics, and then delivered to customer Fly Karoo Air Services, a new charter and tour operator based in the Graaff-Reinet area. The prototype Robinson R22 flew on 28 August 1975, and the first customer delivery was made in 1979. The four-seat R44 followed in 1993, and the five-seat, turbine-powered R66 in 2010. "A nice way to end the year," company President Kurt Robinson said of the milestone roll-out.

The Robinson R22 prototype first flew in 1975

Wildcats in the West Country

Wildcats have replaced the Lynx in RN service

Leonardo has been awarded a £271 million, five-year contract by the UK Ministry of Defence to provide support and training services for the British Army's and Royal Navy's fleets of AW159 Wildcat helicopters. It includes spares provisioning, enhanced technical support services, safety management, and synthetic and ground based training for aircrew and maintenance personnel. The contract will support more than 500 skilled workers, mainly at RNAS Yeovilton in Somerset, which is the primary operating base for British Army and Royal Navy Wildcats and also houses the Wildcat Training Centre and maintenance facilities, and at Leonardo's nearby Yeovil factory. On 14 December 2016 Leonardo handed over the 62nd and final Wildcat to the Ministry of Defence.

Airbus Helicopters' deliveries up in 2016

Airbus H135 was selected for the UKMFTS

Airbus Helicopters delivered 418 helicopters in 2016, a five per cent increase over 2015, and booked gross orders for 388: 188 light single-engine helicopters, 163 H135/H145 light twins, and 23 from the Super Puma family. At the end of last year its overall backlog stood at 766 helicopters.

Highlights of 2016 included: H225M sales to Singapore and Kuwait; selection of the H135/H145 family for the UK Military Flying Training System (UKMFTS); first deliveries of the new AS565 MBe Panther naval helicopter to Mexico and Indonesia; and the first flight of the NH90 Sea Lion for the German Navy. On the civilian side, a Chinese consortium signed an order for 100 H135s to be assembled locally over the next ten years; the first VIP-configured H175 medium-twin helicopter entered service, while the public services variant began flight-testing ahead of certification in this year; and testing of the next-generation H160 continued at a steady pace, with first firm orders to be signed this year.

"The multiple challenges faced in 2016 have increased our resolve to support our customers with an ever-increasing commitment to quality and safety, leveraging the most modern portfolio of products and services," said Airbus Helicopters Chief Executive Officer Guillaume Faury. "For the rotorcraft industry as a whole, 2016 was probably the most difficult year of the last decade. Despite this... we delivered on our operational objectives and proceeded with the execution of our transformation plan."

In 2016 the global Airbus helicopter fleet totalled 12,000, in service with more than 3,000 operators.

Bell opens new support facility in Prague

On 25 January Bell Helicopter celebrated handover of the first fully-completed helicopters from its new European customisation and delivery centre in Prague when Air Transport Europe of Slovakia accepted three EMS-configured Model 429s. The facility includes a paint booth capable of handling all Bell helicopter models from out-of-production 'legacy' types to those still in development. Bell's Prague-based General Manager Joachim Goldenberg commented, "We now have the ability to provide full customisation, including maintenance, repair and overhaul capabilities, offering a bespoke delivery experience for all of our European customers."

Over recent years Bell Helicopter's European fleet has grown significantly, particularly among parapublic and EMS operators, and there has been increased demand for the Bell 429, 407GXP and 412EPI throughout the region, reports Jakub Hoda, the company's regional director for Europe and Russia. "Europe remains a key market for us to continue to grow and develop our balanced business," he says. "Establishing the Bell Helicopter facility in Prague lends to our anticipation of further market growth, in addition to the introduction of the new Bell 505 and Bell 525. With this growth, we intend to have the people, products and facilities necessary to continue to win in the region and support our growing footprint."

For more than forty years Bell has supported European, Russian, Middle Eastern and African customers from its Amsterdam Supply Centre. The company also operates the Rotor Blades Ltd blade repair centre in Warminster, UK, and has sixteen maintenance, repair and overhaul facilities throughout Europe and Russia.

New Regs

KEY

+	restored registration	++	re-registered,
*	used imported		British owned
^^^	factory-built microlight	^	surplus ex-military
**	homebuilt	^^	from BGA Register

REGISTRATION		TYPE	OPERATOR
New in-sequence registrations			
G-AVDF	+	Beagle B.121 Pup Series 1	D I Collings, Reading
G-BDAM	+	Noorduyn AT-16 Harvard IIB	Black Star Aviation, Virgin Islands (UK)
G-BIKD, L	+	Boeing 757-236	DHL Air, Belgium
G-BWLW	+	Light Aero Avid Speedwing Mk.4	P G Hayward, North Walsham
G-BZNI	+	Bell 206B JetRanger II	Heli Consultants, Canterbury
G-CFAB	+	Avro 146-RJ100	Triangle Regional Aircraft Leasing, Hatfield
G-CFJF	+	Schempp-Hirth SHK-1	J F Mills, Spain
G-CJFG	+	Aeriane Swift Light PAS	M Jackson, Marlborough
G-CJIW, Y		Airbus EC135 T3	Airbus Helicopters UK, Oxford
G-CJJG		Airbus EC135 T3	Airbus Helicopters UK, Oxford
G-CJNU	^^^	Techpro Merlin 100UL	B S Carpenter, Louth
G-CJOF		Bombardier BD-100-1A10 Challenger 350	London Executive Aviation, Stapleford
G-CJTG	*	Hoffmann H-36 Dimona	M A Pettican, Banbury
G-CJTI	^^^	Aerochute Hummerchute	I Davies, Pwllheli
G-CJTT	^^^	Aerochute Hummerchute	D Townsend, Alfreton
G-CJUO		Cameron Z-42	Atlantic Ballooning, Belgium
G-CJUT	**	Best Off Skyranger Nynja 912S(1)	A Jackson, Belper
G-CJUY	**	Sorrell SNS-8 Hiperlight	R H Cooper, Lincoln
G-CJVH		Lindstrand LTL Series 1-105	Lindstrand Technologies, Oswestry
G-CJVN		Lindstrand LTL Racer 65	Lindstrand Technologies, Oswestry
G-CJVO		Lindstrand LTL Racer 56	Lindstrand Technologies, Oswestry
G-CJVR		Robinson R44 Raven	Heli Air, Wellesbourne
G-CJWE	*	Canadian Car & Foundry Harvard 4	Cirrus Aircraft UK, Sywell
G-CJWI	*	Shadow Lite Streak Shadow (modified)	J A Harris, Gillingham
G-CJWL	^	Hawker Hunter Mk.58A	Hawker Hunter Aviation, London
G-CJWN	*	Airbus EC225 LP Super Puma	Vertical Aviation No1, Ireland
G-CJWW	**	Supermarine Spitfire Mk.26	M R Overall, Braintree
G-CJWY		Cameron O-31	Cameron Balloons, Bristol
New out-of-sequence registrations			
G-CKFW	**	Mauchline Quaich	Quaich Flying Group, Edinburgh
G-CLTA		HPH Glasflugel 304 ES	R E Cross, Basingstoke
G-DENY		Robinson R44 Raven II	S P Denneny, Ilkeston
G-DEUP		Agusta A109S Grand	Castle Air, Liskeard
G-DHKD	*	Boeing 757-23N	DHL Air, Belgium
G-DICA	*	SIAI Marchetti S.208	P Di Carlo, Italy
G-ERLI		Textron Cessna 510 Citation Mustang	London Executive Aviation, Stapleford

Just SuperSTOL G-SSTL takes up its registration this month

REGISTRATION		TYPE	OPERATOR
G-EZPT		Airbus A320-214	easyJet Airline, Luton
G-HEFF		Stemme S12 Twin Voyager	J Heffernan, Monaco
G-ISLL	*	ATR 72-212 A 500 Version	Blue Islands, Jersey CI
G-JZHR		Boeing 737-800	Jet2.com, Leeds
G-KAYS	++	McDonnell Douglas Hughes 369E	Transair (UK), Shoreham
G-KBMM	*	Bombardier BD-700-1A11 Global 5000	Bookajet Aircraft Management, Farnborough
G-LFSW	++	Piper PA-28-161 Warrior II	Liverpool Flying School, Liverpool
G-MILR	**	Aeroprakt A22-LS Foxbat Supersport 600	Myrtlegrove Aviation Services, Dungannon NI
G-MNVW	+	Mainair Gemini Flash II	J C Munro-Hunt, Llandrindod Wells
G-MTAS	+	Whittaker MW5 Sorcerer	C D Wills, Eastleigh
G-NIAB	*	Beech 200C Super King Air	Blue Sky Investments, Douglas IoM
G-PCTW	*	Pilatus PC-12/47E	Orions Leasing, Douglas IoM
G-PTTA, B	++	Reims/Cessna F152	Pilot Training & Testing, Cramlington
G-RIFD		HPH Glasflugel 304 ES	D Griffiths, Brockenhurst
G-RJRC	*	Commander 114B	R M Jowitt, Haywards Heath
G-RVSB	*	Van's RV-6	S Beard, Doncaster
G-SBSB		Diamond DA 40 NG Star	Diamond Aviation Training, Caterham
G-SEFA	*	Piper PA-38-112 Tomahawk	Ace Line, London
G-SIMO	*	Robinson R44 Raven	Helicom, Wokingham
G-SNSJ	*	Agusta AW139	Vertical Aviation No1, Ireland
G-SSTL	**	Just SuperSTOL XL	Avalanche Aviation, Telford
G-SVRN	*	Embraer EMB-500 Phenom 100	TD Aviation (IoM), Liskeard
G-WIZG	++	Agusta A109E Power	Tycoon Aviation, Anguilla

Cancellations		reason
G-BJVT	Reims/Cessna F152	re-registered as G-PTTA
G-BMLM	Beech 58 Baron	sold to Argentina
G-BMWV	Sportavia-Putzer Elster B	cancelled by CAA
G-BSGL	Piper PA-28-161 Warrior II	re-registered as G-LFSW
G-BUWJ	Pitts S-1C Special	sold to Czech Republic
G-BVER	de Havilland Canada DHC-2 Beaver 1	withdrawn from use
G-BXWA	Beech 76 Duchess	sold to Ukraine
G-BYMX	Cameron A-105	cancelled by CAA
G-CDDO	Raj Hamsa X'Air 133(2)	cancelled by CAA
G-CEIK	UltraMagic M-90	sold to Belgium
G-CGME	Ellipse Fuji/Pulma 2000	sold to Ireland
G-CGZL	Flylight MotorFloater Fox 16T	sold to Ireland
G-CHLU	Westland Gazelle AH.1	sold to South Africa
G-CIJP	Beech B36TC Bonanza	sold to USA
G-CIMJ	McDonnell Douglas Hughes 369E	re-registered as G-KAYS
G-CIUL	Diamond DA 40 Star	sold to Australia
G-CIYA	Alisport Silent 2 Electro	destroyed
G-CJFD	Eurocopter AS350B3 Ecureuil	sold to Spain
G-CJHA	Finmeccanica Agusta AW169	sold to Ireland
G-CJRI	Robinson R66 Turbine	sold to Switzerland
G-CJSJ	Rolladen-Schneider LS7-WL	sold to Germany
G-COBI	Beech B300 Super King Air 350	sold to Namibia
G-DDHC	PZL SZD-41A Jantar Standard 1	sold to Poland
G-DDIG	Rockwell Commander 114	sold to Ukraine
G-DEVY	Schleicher ASK 23	destroyed
G-DGSM	Glaser-Dirks DG-400-17	sold to Germany
G-EVIL	Xtremeair XA41	sold to USA
G-EVPH	Aerotechnik EV-97 Eurostar SL	destroyed
G-FSHA	Denney Kitfox Mk.2	cancelled by CAA
G-FUFU	Agusta A109S Grand	re-registered as G-DEUP
G-GEKO	Reflex Paramania Revolution/Kobra Kilo (modified)	cancelled by CAA
G-JBIS	Cessna 550 Citation II	sold to USA
G-MTGM	Solar Wings Pegasus XL-R	cancelled by CAA
G-MTZO	Mainair Gemini Flash IIA	withdrawn from use
G-MVZI	Thruster T300	cancelled by CAA
G-MZMX	Pegasus Cyclone AX2000	sold to Ireland
G-NOUS	Cessna 172S Skyhawk	sold to Italy
G-OOER	Lindstrand LBL 25A Cloudhopper	sold to Denmark
G-RAJG	Boeing 737-476	sold to USA
G-STDL	Phillips ST2 Speedtwin	cancelled by CAA
G-TAWH	Boeing 737-8K5	sold to Canada
G-WACT	Reims/Cessna F152	re-registered as G-PTTB
G-WWFC	Dassault Falcon 2000EX	sold to France
G-XXRG	Light Aero Avid Speedwing Mk.4	re-registered as G-BWLW

First-born Pup

On 8 April 1967, when the prototype Beagle Pup G-AVDF made its first flight, it marked a change in direction for the company, from Auster derivatives to all-metal, aerobatic trainers and tourers. The British government took over the loss-making Beagle Aircraft in 1966 but, despite 150 Pups being delivered and orders for one hundred more on the books, calls for more money led to the government pulling the plug in December 1969. G-AVDF was retired in 1971 and stored, but interest in this historic aircraft has led to the formation of the Pup Prototype Restoration Club to get it flying by its fiftieth birthday.

Celtic connections

Designer Hugh Lorimer specialises in unconventional aircraft with unfamiliar names, spread about the British Isles. His first, the Iolaire, is being restored in Northern Ireland while the next, the Sgian Dubh, another canard, is ready for its first flight in Cornwall. Now he has registered his Mauchline Quaich G-CKFW in Scotland. This is a more traditional-looking high-wing single-seater built from extruded polystyrene foam and fibreglass and it is claimed that its manufacture 'requires no specialist skills or machinery and could be carried out by the average handyman'.

Absent friends

The SIAI Marchetti S.205 was designed in 1964 as an all-metal low-wing four-seat tourer to compete with the Piper Comanche. The Italian Air Force still uses the military S.208 version and one such now joins the UK Register, the registration G-DICA apparently chosen to mirror the Italy-based owner's name, Di Carlo. The German Stemme S12 Self Launching Motor Glider was flight-tested in February's *Pilot*, winning plaudits for handling and fuel economy. Again it seems to be taking advantage of our out-of-sequence system, as G-HEFF's owner, Mr Heffernan, lives in Monaco.

Hughes 369E G-RISK now flies as G-KAYS

Home is the hunter

In a huge compliment to its sixty-year-old design, the Hawker Hunter is still in demand for aerial combat threat simulation with, among others, the RAF. Hawker Hunter Aviation purchased a batch of the jets on their retirement from the Swiss Air Force, including J-4110 which started life as RAF XF318. Now registered G-CJWL, it was preserved in good condition by being leased out to the Stavanger Air Museum. Two more ex-Royal Canadian Air Force Harvards join this month: the former Duxford-based G-BDAM and one for Cirrus Aviation, G-CJWE.

Going up

Just SuperSTOL G-SSTL is a high-wing kit bush-plane with automatic leading edge slats, Fowler flaps, long-travel hydraulic shocks and unfeasibly large tundra tyres, to give it a claimed takeoff and landing roll of 150 feet. G-SSTL was exhibited outwardly complete at September's LAA Rally.

PAT MALONE
Pat has worked as a journalist on three continents and is a fixed-wing pilot and former helicopter instructor with 1,500 hours TT

Something for the weekend?

A good barber, like a good barman or psychoanalyst, is sensitive to your mood; he dispenses his wisdom according to the temper of the hour and always recognises a golden opportunity to shut up. But I can listen to my barber prattle away whatever my disposition because his specialist subject is the early development of the aircraft jet engine, 1928 to 1945, and he knows his stuff.

When Rick began regaling me with details of pressure ratios, mass flow and blading reaction in early gas turbines, while the scissors flashed about my ears, I asked him what on earth they were teaching people at hairdressing school these days, and a singular and surprising tale emerged. Rick coiffed a lady called Audrey Bailey whose husband Bill shared Rick's interest in historic aircraft. When he died Audrey gave Rick a book Bill had written about work on early jet engines. It was self-published, bound with a plastic spiral and of little more than Xerox quality and Bill had never been able to interest a publisher. Rick gave it to me to read, and what an extraordinary book it turned out to be.

My barber's specialist subject is the early jet engine

Bill Bailey was posted from the RAF Officers Engineering School to the Royal Aircraft Establishment in 1940 to work on an axial gas turbine engine, a project that ran parallel to the development of Frank Whittle's centrifugal turbine. His book is technically detailed beyond my understanding – the cover diagram is taken from Whittle's 1931 patent specification, which famously he could not afford £5 to renew, thus losing control of his invention. Bailey's book tells a tale of engineering brilliance and vision, tenacity, bad faith, vested interests, bureaucratic inertia, timidity and stupidity, and it reinforces my lack of faith in the government's ability to do anything well.

I knew that the Air Ministry had sought the opinion of Arnold Griffith, Superintendent of their own research laboratory, in 1929 when Whittle first approached them with his idea, and that on the basis of Griffith's negative report the Ministry rejected the engine as impractical. I did not know that at the time Griffith was working on his own turbine, not as a reaction engine but to drive a propeller. It never worked, and Rolls-Royce gave up on it in 1944, but how much was Griffith's opinion coloured by his fear of upstart competition?

Not for ten years when, with pig-headed obstinacy and very little money, Whittle built an engine that ran so well that it could not be ignored, did the Ministry come round, but Bailey believed Britain should have had a monopoly on jet fighters on the day war broke out. The engine was not even put on the secret list, and when Whittle's patent was published in 1931 the German Embassy bought several copies from HMSO and sent them to all the major aeronautical establishments back home. Heinkel and Junkers began work on gas turbines soon afterwards.

The story gets relentlessly worse. When they began to wake up, the men from the Ministry encouraged Whittle to develop his engine with private capital, but belatedly placed the project on the secret list so he couldn't tell potential investors why he wanted their money. What's more, they retained the rights of 'Free Crown User' which meant Whittle's investors wouldn't get any licence fees from the government, likely to be their biggest customer. Still he ploughed on, until in 1939 he astounded and galvanised the Ministry with his successful centrifugal compressor.

The book has an introduction by Frank's son Ian Whittle, who recognised its value and supplemented Bill Bailey's material. He tells me that on the outbreak of war his father, who was of course an RAF pilot, agonised over whether to join his colleagues in the air but was persuaded to stick to his workbench. History records that in 1941 Britain gifted his technology to the Americans, and Whittle was sent over to explain it to General Electric. Eventually Rolls-Royce took the engine off Rover for nothing, and their wily General Manager Lord Hives managed to do so without having to pay Whittle any money. And infamously, in one of the most criminally insane acts ever perpetrated by any government – for which, astoundingly, nobody was ever tortured and shot – Britain sold the jet engine to the Russians. "What fool would sell us his secrets?" asked Stalin, licking his lips.

"What fool would sell us his secrets?" asked Stalin

Bill Bailey's book outlines the parallel development of aircraft turbines in Germany, debunks the claims of the many who sought to steal Whittle's glory and, says Ian Whittle, gives a unique insight into the RAE's work during those formative years. But Ian himself adds personal touches that find no place in the book. His father had prickly relationships with contractors, mostly civilians who couldn't handle being told what to do by an RAF pilot. They often tried to bypass him, only to discover that he had already thought through and solved the problem they were stuck on – after all, he'd outlined everything from reheat to high bypass ratio turbines in the 1930s. "He suffered a great deal," Ian says. "Every delay that wasn't technical upset him terribly. He had nervous breakdowns, headaches, boils, eczema, agoraphobia, sleeplessness, and he smoked and drank too much. Quite surprising that he lived to be 89, really."

Ian also has some of the best anecdotes: "When Vladimir Klimov visited Rolls-Royce he instructed his henchmen to wear soft-soled brothel-creepers and to shuffle about where turbine blades were being made, hoping to pick up metal fragments so they could find out what they were made of. But in the production area there was a bin of reject blades, and when nobody was looking Klimov simply slipped a couple into his pocket." Subterfuge was unnecessary, of course, when the British government agreed to hand over our best technology in the form of the Nene engine to the Soviets. It was swiftly copied and stuck into the MiG-15, launching the Communist bloc into the jet era.

There's far more in Bailey's book than I can even allude to here, and it's a shame virtually no-one will ever read it. More than essential history, it teaches us what happens when bureaucracy trumps endeavour – a lesson for today and tomorrow. Me, I'm due a haircut... and I've got a fascinating story for Rick about some Russian engineers and their shoes. ■

Piper's forgotten American Indian

The elegant Piper Comanche still impresses today, especially after a splendid refurbishment

Words *Dave Unwin* **Photos** *Keith Wilson*

Filthy, forlorn and with flat tyres, the PA-24 at the back of the hangar was certainly a sorry sight. Keith and I regarded it in stunned silence. "That can't be it!" he said. "Well if it is, I'm not flying it!" I retorted. Retracing our steps, we both practically sighed with relief when we spotted what looked like a brand-new Comanche gleaming in the sunshine outside the Dukeries Aviation hangar at Netherthorpe airfield. "That's more like it," we chorused!

The Comanche occupies its own particular place in aviation history, as it was the first all-metal aircraft built by possibly the greatest-ever manufacturer of fabric-covered aircraft; Piper. Although a steady stream of aircraft had flowed from Piper's Lock Haven, Pennsylvania plant over the preceding twenty years, by 1957 the various versions of Cubs, Cruisers and Clippers were beginning to look more than a little dated. This was the start of the Space Age: Russia had a satellite in orbit, nuclear-powered submarines and jet airliners were being tested, and even cars

(such as the Chevrolet Bel Air and Ford Thunderbird) looked futuristic. Of more interest to Piper Aircraft dealers, Beechcraft's V-35 Bonanza had been selling strongly for ten years and they had nothing even remotely like it. If they were to stay in business, Piper clearly needed to update its product line and offer something a little more sophisticated than the 'rag 'n' tube' taildraggers the company had become synonymous with.

Luckily, the previous year Howard 'Pug' Piper had assembled a team of engineers to design a 'Bonanza-beater' and had begun work on an all-metal, retractable undercarriage four-seater that would make the best use of recent advances in drag reduction, such as laminar-flow aerofoils and stabilators. This project became the PA-24. The prototype first flew in 1956, and the first production aircraft the following year. Christened Comanche, this fine-looking flying machine is arguably the most aesthetically pleasing of all Piper's products, and was an almost immediate success. I say *almost* immediate because early models only had 180hp engines and were a little gutless. However, upon the prompt introduction of a 250hp version the following year, the Comanche really took off (both literally and figuratively). Competitively priced at around $21,000, (some $8,000 less than a similarly equipped Bonanza) sales soared, and by 1963 Piper had sold almost 4,000.

The sixties were probably the golden age of GA (particularly in America), and by 1964 there were no fewer than eight different versions of the Comanche available. It remained in production for almost fifteen years and Piper eventually sold 4,857, powered by 180, 250, 260 or 400hp engines. The most popular version (and also the subject of this flight test) is the 250hp variant, with this particular 1963 example owned by Dukeries Aviation's Mark Bonsall. Dukeries are Comanche experts, and as this is Mark's personal aircraft you might expect it to be a little bit special – and it is. Recently refurbished to a very high standard, it really is in quite remarkable condition.

This fine-looking flying machine is arguably the most aesthetically pleasing of all Piper's products

As you approach a Comanche two things are immediately apparent: it's a very handsome aircraft, and it sits rather close to the ground. This PA-24-250 is powered by one of my favourite engines,

Maybe the upright beacon and all those antennae cause a bit of drag, but everything else, including the Comanche's all-flying tailplane, is designed to make the aeroplane as slippery as possible

the Lycoming IO-540. As delivered from the factory, its 250 horses were turned into thrust by a two-bladed, constant-speed propeller, but N61970 has been extensively refurbished and now features a modern three-blade Hartzell Scimitar and a fuel-injected engine. Access to the engine is excellent, as both sides of the top half of the cowling hinge open and can also be removed very quickly. There is a small inspection hatch in the top through which the oil quantity can be checked. The fuel is carried in the wings in rubber bladders. The standard arrangement is two tanks with a combined capacity of 227 litres; N61970 also has the optional auxiliary pair, each carrying up to 56 litres.

While the main undercarriage legs are quite short – giving the aircraft its low squat – the nosewheel is relatively large (it's actually the same size as the 600x6 main wheels). As a consequence, the Comanche does have a bit of a ➔

The Harzell Scimitar propeller, complete with tab-like extensions to aid engine cooling, is a very modern upgrade over the original two-blade unit

Main wheels and nosewheel share the same size tyres, a pragmatic touch amid all the retractable-undercarriage sophistcation

reputation for 'wheelbarrowing' - lifting off prematurely and landing nosewheel-first if not handled correctly. The prototype featured a trailing link undercarriage but legend has it that Bill Piper deemed this arrangement to be 'too expensive', and went for a straight oleo (oil-damped pneumatic spring) legs instead. Although quite short, the undercarriage is relatively wide-track. It is retracted and extended electrically using pushrods, the nosewheel retracting backwards and the main wheels inwards. Cleveland hydraulic disc brakes were standard.

The wing uses a NACA 64 aerofoil, which is an early laminar-flow section. The wing features 5° of dihedral and 2° of incidence, and is mildly swept forward. The flaps are of the same slotted type fitted to most of the metal-clad Pipers, and have four positions: 'Up', 10°, 18° and 40°. Early Comanches used a 'Johnson Bar' for flap selection but by 1963 operation was electric. Pitch control is provided by an all-flying tail – aka a stabilator – instead of a fixed tailplane and elevator. Although also common to the PA-28 series, it is somewhat unusual for an aircraft in this class and I've never really understood why Piper thought it a good idea. It is fitted with mass-balances and a surprisingly large anti-servo tab, while the elegantly swept back fin carries a relatively broad-chord rudder which is also fitted with dual mass-balances.

Access to the generously-sized baggage area – which can carry up to 90kg – is via a good-sized hatch on the starboard side. It is not accessible in flight, but there is a small parcel shelf behind the rear seats. However, as with most other four-seaters, if you have lots of baggage and an adult male on each seat you will definitely not be able to fill the fuel tanks to their maximum capacity – more on this later. In the later PA-24-260C model the rear seats can also be removed, which greatly increases the total baggage area. Piper even offered an optional third row of (very small) seats with the 260C, but I've never seen a Comanche with this arrangement.

In common with many other Pipers, there is only one door. Consequently, access to the cockpit is only possible from the starboard side. Although I understand the structural reasons behind this, from a marketing viewpoint I've often wondered if only having the one door lost any sales to Cessna (although of course the Bonanza has the same arrangement). On the plus side, the wing-root walkway is sensibly sized, and as the trailing edge is so close to the ground no step is required. In fact, with full flap selected the flap trailing edges are very close to the ground, and it's very obvious that ground effect could be an issue.

The single-door philosophy was one thing carried over to the PA-28 series, still in production today

The cabin is quite airy – there are two windows down each side of the fuselage – and the windscreen is also quite large. As part of the refurb, the interior trim and seats have been re-covered and look very smart. Having adjusted the seat, which offers a fair amount of movement longitudinally, I strap myself in and begin to familiarise myself with the cockpit. The straps are the typical American arrangement of lap strap and separate shoulder strap – I don't like them. The control yokes and rudder pedals are big, beefy units that wouldn't look out of place in a much larger aircraft, while the instrument panel and control layout are classic 1960s Americana, and consequently have some features that are perfectly satisfactory – and others that aren't. For example, I prefer a proper engine control quadrant and the flight instruments arranged in the classic 'sacred six' layout, directly in front of the pilot. Well, the Comanche's power controls are plungers in a non-standard arrangement (mixture on the left, throttle central and prop control right), and the flight instruments are also laid out in a non-standard pattern! Owners of older Cherokees may note that the Comanche's mixture control is in exactly the same place as their Cherokee's carb heat plunger – this has probably given a few pilots a thrill over the years.

The undercarriage selector is logically placed and the flap lever, fuel valve and parking brake are all easy to see and reach. The parking brake initially doubled as the brake lever, but toe brakes became standard from 1961. On the downside, some of the switches are hidden by the pilot's control yoke, the elevator trim winder and pitch trim indicator are in the roof, and the flap selector and rudder trim wheel are to the right of the engine controls – and a bit of a stretch. A telescopic lever between the seats, topped with a large red knob, operates the emergency undercarriage system. The engine instrumentation is all on the right side of the panel and consists of a tachometer and manifold pressure gauge, a large fuel flow meter and a block of several small oblong dials, as used in many other Piper aircraft. There's only one fuel gauge; to see the quantity in any given tank simply press the appropriate button around the fuel valve. It's interesting to compare the Comanche's ergonomics with a modern aircraft. For example, there's a stall annunciator light (these day stall systems are primarily audible) and only two lights for the undercarriage (up or locked). Finally, the large rotary fuel selector has five positions (including Off) but no detents or safety catch. Consequently 'Off' can be selected inadvertently. One old-fashioned feature that certainly did meet with my approval is that the pilot has a direct vision panel.

Taxying out to Runway 24

The injected engine starts easily and, with instructor Nick Riddin in the other seat, I taxi out to Runway 24. Nosewheel steering is via rods that are linked to the rudder pedals and these, combined with the toe brakes, make the Comanche a very simple aircraft to taxi. The field of view over, and either side of the nose is fine, but the ride is a little 'twitchy' longitudinally – probably because the wheelbase is quite short.

Having changed tanks to ensure both mains are feeding correctly, we complete the engine run-up and pre-takeoff checks. (Usefully, the takeoff and landing checklists are printed on the panel.) Piper recommends using 18° of flap (the second ➔

1

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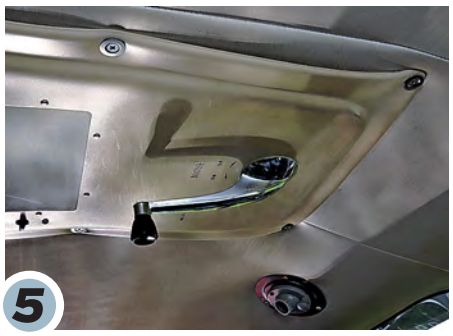

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1 N61970 has the best preserved and presented 1960s panel we have seen in years – absolutely superb

2 Telescopic 'gear lever' serves to lower the undercarriage in an emergency

3 Clever: Switches around the fuel selector display individual tank content on the single panel gauge. Not so clever: there's nothing to stop you selecting fuel *off* in flight

4 Even the cast rudder pedals say 'this is a quality airplane'

5 Overhead elevator trim

6 Nicely engineered door latches

7 Hooray – a proper direct-vision panel!

8 Custom seats fitted by Dukeries Aviation


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notch) for short-field operations, which seems like a lot to me. Pitch trim should be neutral, with just a little bit of right rudder trim dialled in; it works by altering the tension of springs attached to the rudder pedals.

All checks complete, I roll out onto the runway and open the throttle up to 2,575rpm. Ambient conditions are an OAT of 18°C and a light south-westerly wind while, with two on board, no baggage and half fuel we are probably around 350kg below maximum weight. Consequently the acceleration is excellent, and almost immediately I can sense the weight transferring from the wheels to the wings. Because the type has a reputation for wheelbarrowing, I add just a little bit of back-pressure to keep the weight off the nosewheel. The Comanche hits a bump and sort of waffles into the air in ground effect, however the engine is pulling like a train and within seconds the needle of the ASI sweeps past 80kt and I ease the control yoke back, having used about two-thirds of the 500m grass Runway 24, which has a slight upslope.

With the undercarriage and flaps retracted, I pitch and trim for 90kt and the VSI soon shows a very healthy 1,500fpm. At 1,000ft I pull the power back to '25 squared' (25in manifold pressure and 2,500rpm) and trim for the cruise-climb speed of 120kt. Once level at 3,000ft, I make a further power reduction to the recommended economy cruise setting of 22in mp and 2,400rpm (55%). Initially, the speed is a little disappointing, so Nick recommends climbing above our target

Dave holds off nicely, but see how the undercarriage lends itself otherwise to a nosewheel-first arrival!

The ASI needle continues to creep around the dial... settling on 142kt – a TAS of 150 for a fuel flow of around 40 lit/hr

altitude, and then accelerating in a shallow dive, before levelling out. This works well, and even after we've been straight and level for at least a minute, the ASI needle continues to creep around the dial, before eventually settling on 142kt. This gives us a TAS of 150kt for a fuel flow of around 40 lit/hr – pretty impressive for a four-seater designed in the 1950s (and, incidentally, better than the Arrow which replaced it!)

Speaking of it being a four-seater, in the interests of accuracy it should be pointed out that, although the Comanche's optimum range with maximum fuel is over 1,100nm, it obviously isn't possible to fill the tanks and the seats – even with no baggage. To be fair, the same can be said of practically all aircraft in this class, and it is irrefutable that the optional tanks make the Comanche is an incredibly versatile tourer.

An examination of the general handling characteristics, along with a qualitative assessment of the stability and control, reveals again that – as often happens in aviation – things have gone backward. The PA-24's handling is *much* nicer than any of the later PA-28 variants, with crisp, assertive ailerons, an effective stabilator and powerful rudder. Furthermore, all the primary controls are nicely weighted and well harmonised, with low breakout forces. Basically, it's a nice aircraft to fly.

The aeroplane is quite clean aerodynamically, and if you do let the nose dip below the horizon it accelerates quickly. Even with our forward C of G the longitudinal stability is just barely positive, while laterally it is neutral, and directionally it's positive. The ride quality is more like that of a light twin, courtesy of the relatively high wing-loading and, when compared to its contemporaries, the field of view is adequate – although it is certainly not up to the standard of some modern aircraft. Slowing down for an examination of its slow flight and stall characteristics reveals the Comanche to be essentially viceless.

Another trait that it shares with most of its contemporaries is that it has clearly been conceived and designed with the average pilot in mind, and the stall is a perfect example of this. Whether power-on or off, flaps up or down, and with the undercarriage either retracted or extended, the stall is pretty innocuous, with good buffet and little tendency to drop a wing. Indeed, with full flap and a bit of power, the aircraft was stalling at around fifty knots, which is pretty respectable for an aircraft in this class.

Back in the circuit at Netherthorpe I reduce speed to 100kt, lower the undercarriage and then drop the first stage of flap. The undercarriage can be extended ➔

RECORD-BREAKERS

The Comanche was used for many record-breaking flights. In 1959 Max Conrad flew his PA-24-180 from Casablanca to Los Angeles, in an incredible flight of 7,668 miles. It took over 58 hours, and his takeoff was at almost double the approved MAUW of 2,268kg as the aircraft carried 1,968 litres of fuel! Five years later Henry Ohye flew a 250hp version across the Pacific from America to Japan, and in 1966 Britain's Sheila Scott flew her 260-B model *Myth Too* solo (in the accepted use of that word, one other female aviator might note) around the world, in a flight of almost 30,000 miles, setting many records in the process. A Comanche-400 fitted with a Garret turboprop engine also set an altitude class record of over 41,000ft in 1968.

Breakaway shot shows the Comanche's elegant plan form – what a contrast to the chunky Cherokee that followed!

at up to 130kt (making it useful as an emergency airbrake), while the limiting flap speed for full flap is 108kt. Both flap and undercarriage selection produce only small changes in pitch, which are easily trimmed out. As the wheels lock into place there's subtle pitch down and a definite braking effect. Once trimmed, the aircraft is nicely speed-stable, a facet I appreciate as, with an available landing distance of around 400m, Netherthorpe is not overly long. I lower the rest of the flap as required, although in order to keep the noise down I delay pushing the prop lever fully forward until short final. As we're quite light, 70kt over the fence feels about right, and as the aircraft enters ground effect you can definitely feel it. Mindful of the relatively large nosewheel I take care to hold off fully, and after a brief float the Comanche settles nicely onto the main wheels. It's a perfectly acceptable landing (and the next two are even better) but I can sense that the Comanche would be quite intolerant of poor technique. Unlike a Cruiser or Clipper (the sort of aircraft a potential Comanche purchaser might've traded up from back in the day), it will not accept being ten or even five knots fast at the threshold. A protracted float is guaranteed as that laminar-flow wing enters ground effect, and any attempt to force the aircraft onto the ground may well cause it to wheelbarrow. This is an aeroplane for pilots, not drivers. An hour later and Nick and I are aloft in the Comanche again, and easing into formation with a Cessna 172 carrying Keith and Phoenix Flying School CFI Mick Lee. I've written before that formation flight often shows another side to an aircraft's character, and so it was with the Comanche. Despite the air being fairly smooth it was quite hard work putting the aircraft exactly where Keith wanted it, and I regret sitting in the left seat as the field of view isn't great when in echelon port. However, this should not be construed as a criticism of the type – after all Pug Piper

The Comanche's fine lines actually make even the lovely Bonanza look a little bluff and heavy

The Comanche was expensive to build, having a relatively high parts count and also being labour intensive...

did not design it for formation work, he designed it as a tourer. As with any aircraft, the Comanche can only be fairly appraised when it is being operated in the role for which it was designed, and even by 21st Century standards, it is a very good tourer indeed. It has the ability to carry a fairly useful load over an equally reasonable range, and can easily fly two couples plus some baggage about 500nm, plus IFR reserve. Alternatively, it can carry two people over 1,100nm, putting most of Western Europe within un-refuelled range.

In conclusion, the Comanche 250 is a remarkable aeroplane and, when measured by the standards of the time, its performance and comfort must have been amazing to a pilot converting from a Tri-Pacer or Vagabond. Even by 2017 standards it's a pretty impressive machine, so why isn't it in production today, particularly when the Bonanza still is? The Lock Haven plant was badly flooded in June 1972, when the Susquehana River burst its banks in the wake of Hurricane Agnes. But although this disaster is often cited as the reason for Piper ceasing production of both the Comanche and PA-30 Twin Comanche (as all the tooling was destroyed), it's generally accepted that the company was already planning to stop building both types even before the flood. Basically, the Comanche was expensive to build, having a relatively high parts count and also being labour-intensive (rivets on a laminar-flow wing require quality workmanship), particularly when compared to the aircraft that replaced it: the PA-28R Cherokee Arrow and PA-32R Cherokee Lance

Furthermore, being cheaper than the Bonanza proved to be not only a blessing but a curse as well, as the Comanche inevitably became known as 'the poor man's Bonanza'. Finally, the Comanche was never quite as fast as the Bonanza, primarily because the Beechcraft had a 285hp Continental. Piper favoured Lycoming engines and Lycoming didn't make one that powerful! ■

SPECIFICATION

PIPER PA-24-250 COMANCHE

DIMENSIONS

Length	7.59m
Height	2.23m
Wingspan	11.0m
Wing Area	16.53sq m

WEIGHTS AND LOADINGS

Empty weight	766kg
Max AUW	1,315kg
Useful load	549kg
Wing loading	79.6kg/sq m
Power loading	7.06kg/kW
Fuel capacity	339 lit
Baggage capacity	90kg

PERFORMANCE

Vne	176kt
Cruise (TAS)	157kt
Stall	54kt
Climb rate	1,350fpm
Service ceiling	20,000ft
Range	1,433nm

ENGINE AND PROPELLER

Lycoming IO-540- air-cooled flat six, producing 250hp (186kW), driving a Hartzell Scimitar three-blade constant-speed propeller

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STAR LETTER

Keeping the dream alive

Flying... it all started when I was seven, sitting on the Boeing 757 to Majorca. I had the window seat and the music was playing, there was a strange atmosphere in the cabin of fear and tension from infrequent flyers, welcome to the '80s. As the Rolls-Royce engines spooled up to full power, pinned to our seats rolling down the runway, my mother grabbed my hand. Seeing the terror in her eyes I said to her, "Don't worry I will be a pilot one day", we rotated and that was it. I felt the fear, the danger, and the excitement: I loved it and was hooked for life.

I struggled through school in Glasgow due to bullying and dyslexia, and a family that didn't have much money, and the demon of alcohol took control of my mother when I was just aged ten. Anything academic took a back seat to the fight to save my mother's dignity and life from alcohol abuse, but we lost the fight and she passed away in 1996. I was fifteen and left school. I had no qualifications and the only hope was a job in a local nightclub collecting glasses but my life took an unexpected course; I had fallen into drug abuse and was sliding down the slippery slope. At seventeen I found myself sleeping homeless and wondering where I was going in life, but in 1999 I managed to stay clean and use it as life experience to move forward, with strength not to give up. I found myself managing nightclubs which took me abroad and set me on my road to living in Greece.

Later on, in my 20s, I was managing the largest hotels in Greece and life was a far cry from my upbringing in Glasgow. At 28 I started a business idea in Zante with a bar chain from the UK. I was paid €15,000 for my contributions to setting up the business and, as soon as I was handed the money, flying came to mind. "Go for your dream", I said to myself, and in the next moment was surfing the internet for flight schools in Greece. One I came across promised a PPL for €8,000. The next day I decided to transfer the full €15,000 for a PPL and hours-building. Shortly after this my dream was shattered as the Greek crisis hit flight schools and my money was lost - the only thing I had got was a lesson not to pay with a big heart and in advance.

Most would have given up by now, but I couldn't. I worked and saved and finally started flying, and in Kalamata on 10 January 2013 I lined up for my first solo, knees trembling, and speaking to ghosts I asked for help from my mother. "S-XARL cleared for takeoff", I heard; the training kicks in and it's now or never. I throttle up, engine instruments in the green, airspeed alive – I was a robot and I was flying!

Today I'm 36 with a PPL, ATPL theory and 90 hours PIC. I'm working my way to pay for my training and praying I'm not too late. When people ask me how I passed my ATPL I tell them I studied twice as hard; when they ask me about how I dealt with maths and physics with no school education I tell them I learned it because I had to. From my experience, the hardest part of flying is making the decision to start your training and believing in yourself. Who knows where my story will end, but I keep the dream alive and as I look up to the sky and smile with a tear in my eye, I say "Mum...I did it. I'm a pilot."

Thomas Moffat by email

A Dinky collection

This is a rare Dinky No. 60, made in 1939, that I bought in an online auction. It has never been out of the box as I think it was nailed up on a wall as a picture. All the planes are actual registrations except one. From the top, they are:

Imperial Airways airliner
Low wing monoplane
D. H. Leopard Moth
General Monospar
Cierva Autogiro
Percival Gull

Ian Logan by email
PS I've now sold it on at a good profit!

À chacun son goût

Garrett Fisher's somewhat tongue-in-cheek description of his 'Flight from Germany' in the March issue elicited strong views and conflicting responses from readers. Here are a few – Ed

What a brilliant, funny, interesting article written by Garrett Fisher. A total breath of fresh air. Let's have more articles like that in *Pilot*. Thank you.
Simon Dearing, Kent

Having read the highly personal article by Garrett Fisher in the March edition, I wish to write in respect of my own experiences of aviation in Germany, in this case as a British (Yorkshire) resident flying an EASA-compliant non-tailwheel aircraft.

I have visited over 60 destinations in mainland Europe, almost one third of which have been in Germany, and have experienced only order and safety in the air, and courtesy on the ground. A particular asset of Germany, compared to France, is the accessibility of the club Flugplatz size airfield to the non-native speaker, made possible by the Information Service which the article maligns. The precisely-defined circuit patterns (please look in your Jeppesen and at your surroundings, not the GPS) are another aid to safety for the visitor. Landing fees in Germany are modest and can be clearly researched on airport websites in advance, which is not the case in the UK or France. The concern about weekend operating hours applies only to repetitive circuit flying at certain noise-sensitive places - it does not affect touring arrivals at all.

On the ground, I have experienced a 'ramp check' at a state capital airport without any sense of stress, despite my documents being less than perfect, and have had no problems with airside access at commercial airports. The flying club restaurants are perhaps not as good as those in France, but these facilities are certainly better than those I have encountered in the USA!

I am sorry that Mr Fisher was so anxious about the "lack" of inflight weather for Europe on his iPad. He should have obtained one of the ADL units from Golze Engineering. The very helpful Herrr Sebastian Golze is a German.
Dr Graham Leese, Barnsley

Flying Adventure | Flight from Germa

Flight from Germany

Our US expat pilot thought Germany would be a homecoming for him – but the bureaucracy and regulation proved to be all too much

Words & Photos Garrett Fisher

Following in the hallowed footsteps of my ancestors, I came to Germany from America to understand more about my roots and to embrace the only ulture that "can get anything done", rds often heard from my grandfather when referencing the shining glories of the Fatherland. What I did not consider while in America, even though the data was plainly evident in front of my face, was the fact that all of my German ancestors *left* Germany for some unexplained reason, and whatever that was, it was sufficient to warrant crossing the ocean to the west to come to the United States. Instead, I wandered east – with an aeroplane – thinking I would find something better.

The first indication that I might have had a moment of delusion came during some initial maintenance activities on the Cub, a hangover from equipment installation in the United States – all of which had been needed to operate in Europe in the first place. Attempting to handle the most basic of maintenance activities, I ran into the largest of roadblocks: a complex system of inane, obtuse, and poorly-thought-out regulations that rendered it all but impossible to find qualified assistance to troubleshoot and repair some issues with the airplane. To make matters worse, if a person brings up 'troubleshoot' with reference to an engine, Germans are programmed to have a neurological reflex, standing at attention and barking "Overhaul it!" while suspending all further thought.

Early in the maintenance adventure, I walked into a nearby shop wishing to get my transponder checked, for prevention's sake. The guy behind the desk asked the make and model of the aircraft, and proceeded to look into some reference terials, shout some orders, and then a number on the phone. I reminded him I needed a *transponder* verified, and asked if he wanted the make and model of the unit. No, he did not need it, and please shut up while I finish this call. After an ordinary conversation in German, he advised me that while they have a

One hand gloved for prop swinging, 6ft Sin Garrett towers over his US registered PA-11 Cub

mechanic certified for the PA-11, the repair station is not, so they could not help me. "Excuse me! I simply need a transponder checked. What is so hard about that?" "Ve are not zertified to verk on your airplane." "Um, I need you to *check* the transponder. You're not *working* on anything. You're just checking that the signal is correct. Why the hell can't you do that?" "Ve cannot help you!"

In the United States, a mechanic can work on any aircraft, there is no such thing as certification for specific makes and models. Perhaps Germany keeps aviation safe by prohibiting flying?

That started further adventures in finding other mechanical assistance and learning about Part 43, which is the section of regulation that governs maintenance on N-registered aircraft. American pilot-owners are permitted to perform quite a surprising number of activities themselves, up to and including removal of some significant aircraft parts.

When he saw this activity take place, I was warned by a prospective buyer of the flight school at which I was basing my aircraft that such things would be verboten

when he takes over – and I must get my engine overhauled because, as he put it, eloquently, "it is f**ked".

What this German failed to understa was that he was dealing with an American. We are the type of emotionally-fuelled, self-centred, ignorant, and sometimes violent culture that will fight to the death to preserve a dilapidated hovel of a mobile home, brandishing all eighty IQ points in the defence of one's God-given right to private property. There was no way in hell I was going to put up with some pontificating, self-righteous autocrat who believed that the answer to all questions was a major overhaul.

There was also the matter that Germany completely sucked as a place to live. I had long held a profound disdain for much of the cultural stupidity that took place in the social circles of my childhood into young adulthood, the product of what I now understand to be cloistered, post-immigrant communities of German and Polish descendants, all basted with the worst facets of American thinking and baked in the ovens of Rust Belt economic underperformance. I merely viewed such foolishness as American short-sightedness as I yearned for the land of order, organisation, cleanliness, hard work, fiscal solvency. It only took a few mont to realise that just about everything I disliked about the social fabric of my youth – and most particularly the bulk of my family that I despise – was actually a composite picture of German cultural norms! Like a *Twilight Zone* episode that meets a horror movie, I woke up to the stark and horrifying reality that I laid ou extraordinary sums of money to move the one section of the planet that contai the highest concentration of the list of things I dislike the most.

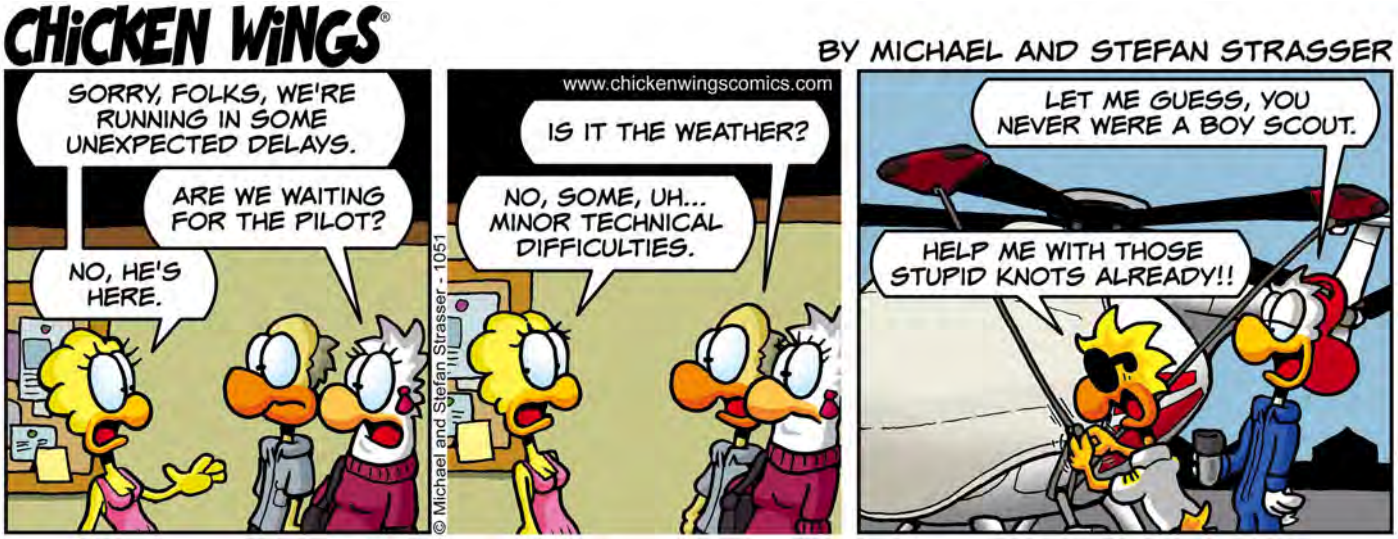
Quietly, I began a fervent search for somewhere else to live. The rule was simple: aviation would be prioritised, for the sake of flying, and for the sake of photography and freedom. My wife and I also decided that proximity to a large city was overrated, and we should choose a site near a pleasant, small airport, in the

I have not read such idiotic rubbish in *Pilot* before. "I went to Germany and it was different from the States". "I went to France and the airspace was different". "In Germany airfields have FISOs, it's dangerous, in France they have FISOs, they're great". "Maintenance operations are different in Europe from the States". And lots of jingoistic descriptions (Germans are ordered, French are French, Spanish are lazy and ignore rules).

The author obviously does not do his research (why move to Germany if it "sucked as a place to live"; avgas is cheaper in France than Germany etc). *Newsflash!* Europe is not the States, and is more than one country.

I accept that ignorant people might hold views like the one regarding Flight Information Services: "the German aviation community continues to pay the fees, forego freedom, undermines aviation and submits to the grand system that achieves no more than bureaucracy and homage to deceased Nazi airport guards", however I also expect a decent Editor not to print such rubbish. Goose stepping on the tarmac? Not all of your readers grew up reading *Commando* and wishing they had been able to have a crack at the Bosch like [grand]daddy did.

To me this article looks the Editor was stuck for content (where is Safety Matters?) and it is just a plug for the author, given that over half of it is the author's photographs. The magazine is already in the bin. Utter rubbish.
Nick Evans, Newton Abbot



Holding the government to account

I recently attended the inaugural meeting of the All Party Parliamentary Group (APPG) on GA, set up jointly by Grant Shapps MP and Byron Davies MP, the latter being nominated Chair by the small number of fellow MPs present. Readers will know that Grant has been a force for good for GA and Byron, a light aircraft pilot himself, will be an excellent Chair.

The most relevant part of the meeting took place when participants were given the opportunity to raise issues of concern. It brought into sharp relief that only a few years on from the conclusion of the GA Red Tape Challenge (RTC), there are still pressing issues to discuss and raise with government. Put simply we – and I mean the whole of the GA community coming together – need to hold the government's feet against the fire to ensure they are not only familiar with the GA RTC but that they also work hard to implement it. Now more than ever there are important issues to address. Take, for example, the sheer number of airfields under threat of closure that feature in the Pilot news pages every month, the forecast shortage of suitably-qualified pilots and engineers, antiquated airspace that is inherently unfriendly to GA, and, of course, the fact that GA training attracts VAT while every other form of education in the UK does not.

Many of these issues are addressed in the March 2015 General Aviation Strategy, produced in response to the RTC. We need to ensure that progress is being made against the commitments outlined in this document, otherwise the document will gather dust on a shelf, resulting in the failure to implement what is an extremely worthwhile initiative. It was, however, encouraging that the APPG indicated that one of the first areas that they would consider is securing airfields, one of the key tenets of the General Aviation Strategy. We must work hard to equip the APPG with the resources it needs, to ensure the government listens. I know that a number of MPs involved with aviation read this publication. I would encourage them to attend the next APPG on GA.

The Air League stands ready to provide support, not least because one of our long-standing supporters is Laurie Price, former Chair of the GA RTC. And readers of Pilot can get involved too: make sure you get in touch with your local MP to make them aware of what your local airfield contributes to the community. I'm sure they'll be surprised to learn just how important it is.

Scott Pendry MRAeS
Council Member, The Air League

More on 8.33 radios...

We still have over twenty aircraft of our fleet to upgrade to 8.33 and we are worried about the financial impact on us and the flying schools we lease aircraft to. Norway, I understand, has applied for an extension to 2025. I know it's not a done deal yet but an avionics installer over there says he thinks it's very likely to go through. I have written to Bob Liddiard and Tony Rapson, at the CAA as below:

'We have been installing the 8.33 radios in our fleet for some years now. Whilst we have to factor in the cost of the unit and the installation costs, there has also been a shortage with these units. We still have many aircraft to refit at vast expense.

For some time the only available unit was the 8.33 Garmin GNS430... These were half the value of the aircraft in some cases. The Garmin GNS 430 stopped production in 2014. We then had a large gap with a very limited choice of 8.33 nav/com units available. We have TRIG, Becker, Dittel producing 8.33 com-only radios with no VOR output... The cost to fit 8.33 radios is astronomical for flying school operators. The other problem which has risen is there is an acute shortage of avionics shops which have the manpower...

The 20% rebate offered is a drop in the ocean. In our opinion this OTT requirement will ground over 80% of the light aircraft in UK. Norway has applied for an extension... to the year 2025. We kindly ask the CAA also to issue a variation and extend this requirement to 2025."

Amarjit Singh Bamrah
Falcon Flying Services/Bigginair Ltd

STAR LETTER

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An 8.33kHz radio saga

In the summer of 2016 I thought it would be smart to 'avoid the rush' and buy an 8.33kHz radio for my five-year-old Rotorsport MTO Sport gyroplane. As the existing unit is a FUNKE ATR500 the easiest option would logically be a straight switch for the new FUNKE ATR833. Unplug the original, plug in the new radio and away I go. Six months later I am still using the old ATR500 with no real idea of when I will have a functioning 8.33kHz radio in my aircraft. I thought that a few words on the various issues I have encountered, and the additional costs I have incurred, might help fellow aviators plan their purchase over the coming months. Some of the problems I have had to deal with include:

1. The ATR500 has a 15-pin plug, whereas the ATR833 has a 25-pin plug. Not a huge problem one would imagine. I had the original wiring diagram and the new wiring so just ask your friendly avionics engineer to knock up an adaptor and away we go... well that didn't work!
2. At this point I assumed that there was a problem with the radio and returned it. It was tested by the seller who said it was perfect, but I asked for a refund anyway, not trusting the delicate instrument to be 100%. I then bought an ATR833 from another distributor, by which point the price had gone up by £300.
3. A bit of digging and I found that FUNKE sells an adaptor that looks slightly more complex than shifting some wiring around. £80 later and the adaptor is installed... and the radio still doesn't work, I could hear other aircraft transmissions but could not transmit. There was a carrier wave but no voice, to paraphrase my avionics engineer.
4. Several calls to FUNKE later they asked what helmet I use. It turns out that there was a known issue with Flycom helmets, of which I own two. A call to Flycom confirmed that there was perhaps an issue with older microphones (one helmet is eighteen months old, the other five years old) and that I should send my helmets off for a 'microphone upgrade'. This seemed like an easy answer, and as I was going on holiday for a week, I could send them off and not lose any time.
5. Over ... weeks and £360 later ... returned, but only after numerous calls chasing them up. And guess what? The helmets still do not work with the new radio.
6. Calls and emails to Rotorsport, the manufacturers of my gyro in the UK, have had no meaningful response.
7. So I have spoken numerous times to FUNKE and Flycom, both of whom, probably quite rightly, claim that their products work perfectly and it is not really their problem. My problem is that they just do not seem to work together! I must say that both FUNKE and Flycom have been helpful, but understandably seem to have the attitude 'it's not my problem', which is not much help to their poor customer who is stuck in the middle.
8. My options are that: there is a problem with the FUNKE adaptor; a problem with the wiring on my five-year-old aircraft; a problem with the radio; and/or a problem with the helmets. In order to test the helmets, I am having an adaptor made that will allow a normal aircraft headset to be plugged into my autogyro. The aircraft has a binder connection which looks nothing like the normal jack on every other headset in GA.
9. So six months after my initial purchase, I have spent £1,000 on a radio, refunded; £1,300 on another new radio; £60 on an adaptor; £360 on new Flycom microphones, plus the time spent by an engineer who has not billed me yet, and a lot of phone calls, time and effort to try to get this all to work.
10. The 'easy' answer might just be to buy two more helmets from another manufacturer but paying out another £1,000 is a little too much for my wallet to stand at the moment. So much for a straight swap, one radio for another! I hope this helps anyone looking to upgrade. Ask lots of questions before spending a great deal of money on something that might require even more of an outlay before it works. It may not be as straightforward as you imagine. In the meantime if anyone has any suggestions as to a remedy for me, I'm all ears.

Norman Crighton, Battle

PS Many thanks to T... my long-su... neer

Singh received a three-page reply from the CAA which we have summarised below:

- The CAA restates its position on the background to the need for 8.33
- The CAA says that NW Europe suffers from the worst frequency congestion
- The CAA has issued an exemption request in December 2016 but the European Commission has six months to review the request and respond, and the review will cover all member states who have submitted such requests
- The CAA believes that it has developed a 'proportional measure' to reduce the burden on manufacturers to produce equipment and for industry to install large numbers of aircraft radios before the equipage deadline. It is 'not aware of a current issue with equipment or installer availability' and believes manufacturers have demonstrated innovation through the design of replacement 8.33 units: some just slot in; others have released conversion kits 'so for a majority of aircraft there may be a suitable replacement option that reduces the complexity of installation'
- The UK was the only state to secure funding in 2016 and the total funding (€4.3 million) is for the UK bid only
- Regulation has been seen as necessary by the European Commission in order to secure the availability of VHF radio communications for all airspace operators into the future [and] there is no other way to better share this valuable resource whilst continuing to meet the growing demand for new frequency assignments

One of the venerable Slingsby T.21 Sedbergh gliders

Going... going... gone

Dave Unwin's PTT column (March) touches on an issue that is likely to significantly reduce the number of UK pilots in training in a few years' time: the enforced three-year 'pause' in all Air Cadet gliding activity, due to the grounding of the fleet. Many pilots, like me, are former Air Cadets, first bitten by the flying bug during a flight in an RAF Vigilant motor glider, a Viking sailplane, a Venture motor glider or before that (in my case) the venerable Kirby Mk.3 and Slingsby T.21 (Sedbergh) gliders.

Today's teenagers spend on average four years in the Air Cadet organisation, so almost the entire current generation of cadets has never had any gliding experience. Have you seen an Air Cadet sporting his or her gliding wings lately? They are as rare as hen's teeth. Fortunately, HQ Air Cadets is taking urgent steps to address this problem. They have dumbed-down the syllabus to ensure that cadets will now be awarded their blue gliding wings for doing a bit of ground school and one air experience flight, rather than having to complete an entire Gliding Scholarship to solo standard. Problem solved then!

The Air Cadets are part of the RAF, a hierarchical organisation with clear lines of responsibility, especially when it comes to flying. So who is responsible for this fiasco? Well, no-one in the hierarchy of any of the relevant organisations can claim innocence. The perfectly airworthy fleet of Air Cadet gliders was grounded for three years due to paperwork issues, while the nationwide pool of volunteer instructors all lost their currency, and the aircraft languished in hangars until they required maintenance or disposal. In two or three years' time we will probably learn that this has resulted in reducing the flow of UK pilots into training – at least temporarily – by up to 50%. And airfields could be lost too, to development, as a result of this (in)action...

To end on a positive note, the health & safety statistics show that for the last three years, the Air Cadet glider fleet has a 100% perfect safety record. For the first time in the organisation's 75-year history, no cadets have been exposed to inherently risky activities such as sitting in or flying a glider!

Gareth Owens, MSc (Oxon), MBCS, CITP

Crete2Cape

Those magnificent men – and women – in their vintage flying machines tackle a 7,000 mile trip across Africa: what could possibly go wrong?

Words *'Insider'* **Photos** *VintageAirRally/Beatrice De Smet*

The Vintage Air Rally, held over five weeks in November and December last year, aimed high. Mixing together more than ten vintage biplanes with modern aircraft on a challenging 7,000nm trip across Africa, from Crete to Cape Town, was always going to be a stern test of pilots, machines and organisers. Ambitious events were planned along the way, including black-tie functions with diplomats and air shows entertaining thousands of spectators, and the schedule required clearances to fly through ten different countries, each of which presented its own idiosyncrasies.

Brussels-based organiser Prepare2Go had spent two years on the fine planning detail, making preparations and gaining permissions to fly through each country, some of them less stable than others. Two turbine aircraft would be in the group, a Cessna Caravan and an R66 helicopter, so both avgas and jet fuel had to be available at the stops.

The participants included three Travel Air 4000s (out of only forty that survive), the oldest a sprightly 88 years; four Tiger Moths; a Stampe SV.4B; a Bücker 131 Jungmann; a Stearman; and a wartime era Piper L-4 Cub. It was possible just getting to the start line in Crete would be too much for some of them, never mind the onward journey. Daily mileages were planned up to about 475 nautical miles, but the biplanes' limitations meant many legs were much closer to 200.

The crews were all experienced, but how would a bunch of people adventurous enough to fly open-cockpit biplanes the length of a continent take to being shepherded around as a tour group?

Unsurprisingly, not everything went to plan. The three Travel Airs were shipped to Europe from the USA, assembled in the UK and then flown to Crete. One of the entrants, Pedro Langton, who lives in Vancouver and California and was representing Canada, was remarkably sanguine about the fact that the engine of his 1928 Travel Air broke its crankshaft on final approach to Cannes airport. He landed safely and then set about finding a replacement radial, arranging for it to be shipped from the USA to France, and having his mechanic come out to Cannes to help him fit it. Alaska-based pilots Nick and Lita Oppegard, in another Travel Air 4000, also flew from the UK to Crete. "This whole trip's been worth it if we did nothing more," said Nick before the start.

Considering the season in Europe, a remarkably high proportion of the participants were present and correct at the Sitia start line. One exception was Maurice Kirk with his Cub, long a thorn in the side of aviation, and other bureaucracies (as well as a former drinking buddy of the late actor Oliver Reed), who was delayed by weather and forced landings on his way from the UK to Crete.

Franco-Belgian Team 'Frog & Kiwi' embody the spirit of the Vintage Air Rally event

An Antonov An-2 biplane was slowed so much by adverse weather that it did not catch up with the rest of the rally until Egypt, which caused a few problems as the aircraft had been earmarked to carry some equipment for other crews.

While a new Waco YMF-5, flown by German distributor Johannes Graf von Schaesberg, with Fabian Graf von Einsiedel in the front seat, blurred the distinction between old and new aircraft, there was no doubt about the two matching new Bushcats – cheap ($65,000), rugged, South African-made aircraft that conform to US Light Sport rules – in distinctive zebra-striped zip-on clothing. Team Bushcat also provided a Cessna Caravan, which was to perform part of the freight-carrying duties. A taildragger Pipistrel Sinus motor glider and two Robinson helicopters, an R44 and an R66, were also among those starting on time.

Briefings included the use of the yellow electronic 'bricks' that acted as both emergency locator beacons and timers for the competitive part of the rally, allowing a comparison of actual flight times with estimates. "Remember to turn them on when you start and, most importantly, turn them off when you land," urged Prepare2Go founder and boss Sam Rutherford. Simple enough, you would have thought... He added that this was the start of 'African aviation', where rules and practices might

Sporting tarmac-friendly tailwheels, Tiger Moths and Travel Airs line up for the start at Sitia Airport, Crete

surprise those more used to American or European flying.

As if to prove that, news of the rally's clearance to fly into Egyptian airspace came first via the local taxi driver, who passed the information on to Rutherford as an after-dinner conga swallowed up pilots and organisers alike.

> ***"The whole trip's been worth it..."*** **Travel Air pilot Nick Oppegard**

The first day's route, from Crete to Egypt, would be the longest single over-water crossing many had made. Rutherford, a former British Army Air Corps helicopter pilot who, with his wife Beatrice De Smet, runs Prepare2Go, said the Greek coastguard would be standing by under the initial part of the route, and after that the helicopters flying at the back of the loose formation would act as sweepers. But for the R44 at least, the leg was at the extent of its range, even with an extra bladder tank of fuel that Sarah Chevenix-Trench, piloting the helicopter along with husband Paddy Wills, described as having an unruly, loose-limbed drunk in the back seat!

And the lack of the An-2 made itself felt. "We need a raft plan," said Rutherford. "Our own raft and lifejackets are on the Antonov."

Many pilots in the wholly single-engined fleet were tense as they set off over the Mediterranean. Similar machines stuck together – the Moths quickly formed a tight group – and the 123.475 common frequency helped work out flight levels that would provide a tailwind. First sight of dusty brown Egypt after some two and a half hours of bright blue sky and deeper blue ➔

Rally organisor Sam Rutherford gives one of many media interviews

sea came as a significant relief. “Pilots tell a lot of jokes when they are nervous,” said Alaskan pilot Nick Oppegard. “As we got closer to the African shoreline the jokes stopped.” An exuberant wing-waggling low pass over the Mersa Matruh runway by the Travel Airs and Stampe, which had travelled in loose formation, was authorised by the Tower but apparently not much appreciated at the semi-military airport. And the next day it emerged that a number of competitors had not remembered to turn off their yellow bricks overnight. Some could not work out how to turn them on again, which did not bode well for the scoring system (and disappointed followers online).

Flying over Egypt the next day, first following the coast and then uninterrupted desert, the route passed near El-Alamein, where von Schaesberg’s father had been taken prisoner in the Second World War. Rutherford’s team had secured permission to end the day with a biplane flying around the pyramids at Giza and landing almost at their foot – unprecedented in eighty years. The Belgian/French team of ‘Kiwi and Frog’ – Cedric Collette and his wife Alexandra Maingard – flying the Stampe would perform the honours. Kiwi would fly in, with an Egyptian official, then Frog would reclaim the front seat to fly from Giza back to 6th of October airport, where all the aircraft were to spend two nights.

Cairo traffic delayed the other entrants – on a bus and in a few classic cars – but eventually everyone was able to witness not only a biplane buzzing one of the African continent’s most distinctive sights, but also a prop spinning in close enough proximity to herds of Egyptian media to make any British health and safety official quail – and not a fluorescent vest in sight. Even that historic landing was not without incident. “My first attempt was a bouncer,” said Collette. “I had to go around again.”

On the rest day some pilots visited the pyramids while others checked their aircraft. Dusseldorf-based Ingo Presser, owner of the Bücker, investigated an oil leak, Langton made sure his new engine was bedding in, and the Bushcat crews were seeking to squeeze a bit more performance out of one aircraft.

Kiwi & Frog’s Stampe performed the Pyramids fly-past

One of the sights that made the whole event worthwhile: Abu Simbel temple, seen from the air

The rally continued south and east. A promised low pass along the Nile in Cairo – seven bridges and 1,500ft – failed to materialise due to poor visibility and a delay for essential maintenance on some aircraft. A second planned leg, from Hurghada to Aswan, was scuppered by slow refuelling but the wait did allow the garden chairs carried in the Caravan to be put to good use in an impromptu campsite set up around the aircraft.

Maurice Kirk landed short of the runway... described as an ‘engine failure’

The late-arriving Stearman showed up the next morning, resplendent in bright yellow US Navy training colours, but it wasn’t until the morning after that the AN-2 joined the group at Abu Simbel, enabling everyone to set off for the less restrictive airspace of Sudan. On the rest day in Meroe in the Kush area, some visited the Nubian pyramids, smaller and steeper than the ones at Giza. Then on to Khartoum where Maurice Kirk landed short of the runway with what he described as an ‘engine failure’ – another incident in his flying life.

On the rest day at Khartoum, the R44 crew tried unsuccessfully to fish out a length of refuelling nozzle that had fallen into their tank, and Sudan’s first airshow had been planned, but permission was withdrawn. The next day’s route would take the rally on to another country but the quick fuel stop in Damazin turned into a lengthy wait for Kirk. According to Rutherford, one of the flying vet’s GPS units was not working and he did not know how to use the other. Plus his compass was broken. Unsurprisingly, given these navigation challenges, Kirk was lost. Surprisingly, though, when he finally made contact with Damazin, Rutherford was able to talk him in.

And so on towards Gambela in Ethiopia, where clearance to land had come through only the night before. However, by the time the Caravan, last in the loose formation, was ready to depart, the clearance had been rescinded. The Caravan, with Rutherford on board, stopped so that he could talk to Ethiopian air traffic control – and clearance was re-obtained, but only for the Caravan. Unfortunately, the rest of the aircraft, all of which were in the air, were not so lucky. Propelled by a twenty-knot tailwind, they were too late to turn around, and as their fuel had already been delivered to Gambela, which is not normally a point of entry to the country, it seemed clear to most that they were expected.

Local women at Dongola, Sudan came along to admire the rally aircraft (Antonov AN-2 in the background)

Above: 'Team Shambles' perhaps, but Maurice Kirk's Cubs have carried him to Australia and made several epic sea crossings. This time he was looking more dishevelled (left), not least after being released from a 56-hour detention in Gambela

Not quite – on nearing the airport, the Tower ordered them to return to Sudan. After a stressful interchange, they declared a fuel emergency and landed – only to have their passports, phones, tablets and computers taken away, and find themselves confined to the rather limited facilities of the terminal building. Not exactly the rapturous greeting, involving song, dance and local musicians, that had been the norm until then.

The involuntary stay lasted more than fifty hours, while different arms of the Ethiopian government failed to resolve an increasingly embarrassing incident, especially when pilots and organisers, using hidden phones, started to mobilise not only western diplomats but also the press. Eventually the authorities released them to fly further into Ethiopia, before turning south for Kenya – though they elected to go via the most direct route out of the country, crossing South Sudan to Lokichogio in Kenya. Rutherford later looked on the positive side: "From a team-coming-together point of view, people will probably remember it as a high point."

By this time, Kirk had been excluded from the rally and should not have been in Ethiopia at all – but had tagged along to Gambela. Over South Sudan he had yet another engine failure and was forced to land, puncturing a tyre in the process: the end of his involvement in the rally, but the start, for him, of another adventure in getting his injured Cub out of South Sudan.

The participants' next leg was along the Rift Valley to the 7,000ft elevation Eldoret, giving some cause for concern over aircraft performance in hot and high conditions. Then more drama came en route to Nairobi. The Stearman suffered an engine failure and overturned in the ensuing forced landing – fortunately without injury to its crew, but wrecking the aircraft. Now without Cub and Stearman, the rally based itself at Nairobi's Wilson airport, for the Kenyan capital's first ever airshow, over the national park in the centre of town. One of the Bushcats landed at a specially constructed runway in the park, and some of the biplanes pleased the huge crowd with flypasts.

Next stop was Kilimanjaro, and decision time about whether to fly into a strip at a giddy 8,000ft on the lip of the giant Ngorongoro crater. Among those who opted to do so were some of the Travel Airs and Moths, while other pilots took a less ambitious route by truck from a strip 4,000ft lower at Lake Manyara. Langton said landing on the edge of the crater was one of the highlights of the trip, and he was proud to have the African record as the oldest aeroplane to have landed there.

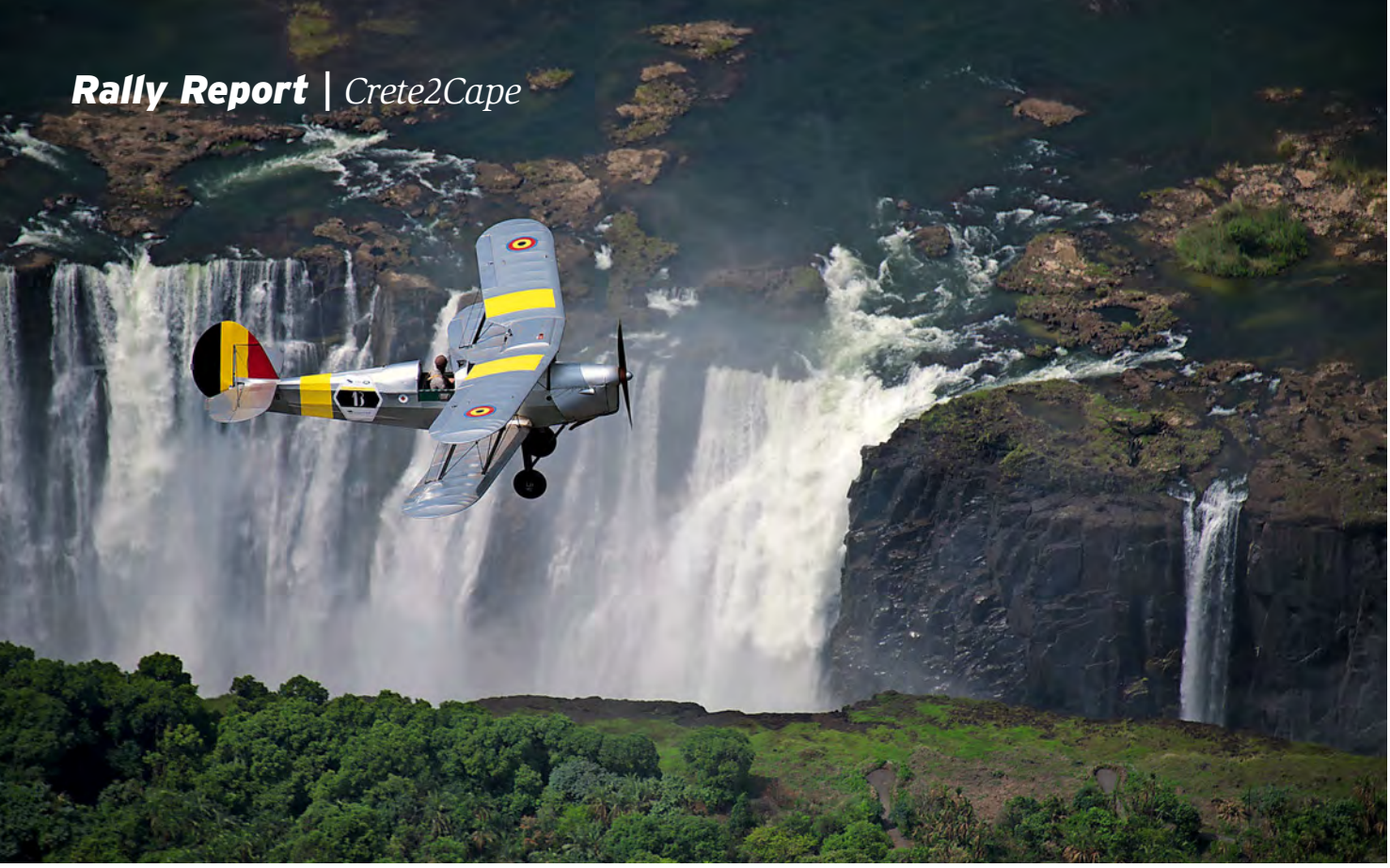
The following day saw a steep descent to the continent's east coast, white sand beaches and the spice island of Zanzibar, a semi-autonomous province of Tanzania. After that came a rich mix of landscapes – baobab trees, bush, forest, parks – and increasingly exotic wildlife as the rally wound its way inland over Tanzania and into Zambia. Kusama airport saw huge crowds and, just after most aircraft had left, a sudden storm that casually lifted and moved the Caravan, fortunately without damage but it was a taste of the power of angry African skies.

The teams notched up another landing mishap at Kawa in Zambia when the Pipistrel landed heavily enough to damage both propeller and landing gear but again no pilot injury. Leaving the Pipistrel behind to be repaired (it rejoined in Botswana), the rally headed for Lusaka and another airshow, then to Victoria Falls on the Zambia/Zimbabwe border. The anticipated photo opportunity of vintage biplanes framed by the falls did not quite live up to expectations as the lowest clearance available was much higher than expected.

Flying out of Zimbabwe to Botswana, said Langton, "The wildlife suddenly seemed to really multiply. I had to remind myself I wasn't at the zoo. The numbers of elephants, zebras… it was wonderful." Then at Maun in Botswana another mishap: a violent overnight storm pushed the Botswana Tiger Moth – the only one registered in the country – into overly familiar contact with the Robinson R44. In the morning the crews of the two aircraft discovered one of the Moth's lower wings wedged under the helicopter's right skid, and the R44's tail boom wedged awkwardly over the rear fuselage of the biplane. This looked like the end of the rally for the Moth and R44. The R44 crew undertook frantic ➔

Team Alaska and Team Barnstormers biplanes at Lockichogio, Kenya

One of the Bushcats demonstrates its STOL mettle in Nairobi National Park



For many competitors, flying over majestic Victoria Falls was the highlight of the rally – even though the authorities ruled 'not below 1,500ft'

negotiations with engineers and loss assessors but, with 75 hours already flown from Denham in the UK, the R44 was near to the Robinson rebuild time of 2,200 hours/twelve years, so eventually it was declared a write-off. Its pilots elected to continue on to the Cape Town finishing line as passengers – having travelled so far, they were reluctant to miss seeing the rally through to the end.

The Moth pilot, Brett Warren, flying with his daughter Sarah, had earlier said he needed to slim down his fleet, saying he always ended up using his Husky anyway for regular low-level flights between the south and the north of Botswana. This perhaps was not *quite* what he intended.

Pressman's Bücker was the first of the vintage aircraft to land at the finishing line at Stellenbosch, by Cape Town – within the hour of its expected arrival, amazingly enough, given Ethiopian and other delays.

But the overall rally trophy went to Pedro Langton and his Travel Air – a popular decision. Apparently laid back about the competitive side of the rally, the American was secretly confident he would do well. He is keen to share with others a simpler age of flight – he takes up "loads of people" in his Travel Air, and found expanding the horizons of people he met the most satisfying part of the rally.

The coveted Spirit of the Rally award, meanwhile, was won by Alaska pilots Nick and Lita Oppegard, in their Travel Air, for enthusiasm that refused to be quenched.

The participating aircraft certainly captured the public imagination in Africa and conjured the spirit of an age when every flight was magical – and engine failures common. But, just as Langton had done, the pilots merely rolled up their sleeves, repaired their aircraft, and finished the task they had started. ◘

Overall rally winner Pedro Langton

NEXT VINTAGE AIR RALLY

Prepare2Go has already started work on the next Vintage Air Rally, due to depart Ushuaia in Argentina on 3 March 2018, travelling the length of South America to reach Florida on 14 April. The aim is to limit entries to about fifteen pre-1939 aircraft, retracing some of the routes of early French carrier Aéropostale, one of whose pioneering pilots was Antoine de Saint-Exupery, author of *Le Petit Prince* and *Vol de Nuit*.

Rutherford is aiming to keep the entry cost to no more than that for the Crete2Cape rally – $10,000 plus fuel and oil. He reckoned that, including the cost of shipping aircraft to the start line and home from the finish, entrants probably spent about $50,000 each. He has also learned the importance of having dedicated freight-haulers, instead of relying on participants with bigger aircraft.

The plan is for Ushuaia2USA to be followed in 2020 by Sydney2London, and the following year by another Crete2Cape, with a few smaller and much shorter rallies before then, in Europe and the USA, to coincide with classic car rallies. *www.vintageairrally.com*

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DAVE UNWIN
Pilot's **Flight Test Editor operates a Jodel D.9 from a farm strip and has logged stick-time on everything from ultralights to fast jets**

Oh, that glorious rumbling radial rhythm...

Someone at the gliding club asked me recently, "Why do you like radial engines so much?" I tried to explain that these big round motors have *character* (and particularly when compared to the Rotax 912 and Lycoming O-360 fitted to our two tugs). Even just starting a big radial is a visceral experience for, along with the grumpy grumble (and occasional backfire), as each cylinder wakes up there's also all the smoke streaming out of the exhausts!

Just starting a big radial is a visceral experience...

Courtesy of my privileged position as *Pilot's* flight test editor, I've been lucky enough to fly behind a wide variety of aero engines, including straight sixes, V-12s and even an inverted V-8. However, although the eager snarl of a Merlin does take some beating, there's just something special about the rumbling rhythm of a radial engine. Be it the idiosyncratic syncopation of a five-cylinder Kinner, the smooth growl of an Alvis or the deep-throated roar of a Jacobs, these 'big pistons' simply have personality.

Even their names are evocative. Although (for example) the Expeditor is powered by a pair of R-985s (R for radial, 985 for its displacement in cubic inches) most pilots know them as Wasp Juniors. In fact, Pratt & Whitney used insect names – principally Wasp and Hornet – while Wright preferred winds, such as Whirlwind and Cyclone. As more powerful versions with multiple rows of cylinders emerged, they simply became Twin Cyclones or Double Wasps. Britain also named its engines: Armstrong Siddeley's were big cats like Jaguar and Puma, while Bristol used Roman gods such as Mercury and Jupiter, and Alvis went Greek with Leonides and Pelides. The less-imaginative Russians and Germans eschewed such frivolities and mostly used numbers, such as ASh-62 or BMW801.

These are all great engines but, in my opinion, the greatest are P & W's Wasps (interestingly, the Wasp was the first engine made by P & W) and Wright's Cyclone. Both began life as nine-cylinder single-row radials and each spawned myriad variants, ranging in configuration from a single row of seven cylinders to four rows of seven, while horsepower varied from 450 to 4,300!

The statistics on these engines are incredible. The Twin Wasp was fitted to almost ninety different types (including 10,000 C-47s and 19,000 B-24s) while early DC-3s and most B-17s used Cyclones. Both companies developed ever larger and more powerful engines almost in parallel, Wright peaking with the R-3350 Turbo-Compound and P & W with the incredible R-4360 Wasp Major.

The Wright engine was developed from its successful Duplex Cyclone and had eighteen cylinders in two rows of nine. It eventually proved to be quite reliable, but the Wasp Major was even more impressive. This mighty motor had a displacement of over 71 litres, and consisted of four rows of seven air-cooled cylinders, with each row having a slight angular offset from the one in front to allow effective airflow. This unique cooling configuration gave rise to the engine being nicknamed 'corncob', and it was eventually fitted to more than a dozen different types, ranging in size from the FG-1 Corsair single-seat fighter to the ten-engine B-36 bomber.

The Wasp Major had four rows of seven air-cooled cylinders

The Wasp Major represented the zenith of the big radials and, although early models had an alarming tendency to catch fire, P & W eventually sold over 18,000. However, it's the maintenance crews who must've sighed with relief when the first jets began to appear. Each Wasp Major had 56 spark plugs, so can you imagine how a BOAC line engineer must've felt when an 'Atlantic Baron' pointed at a Stratocruiser standing out on the tarmac on a wet and windy night at Gander and announced, "I say old chap, I think number three's got a duff plug!"

Last month a British sports team did rather well at a prestigious international event, eventually taking home about a third of the available medals, yet sadly it got very little mainstream media coverage. In fact – and let's be honest – this is probably the first you've heard of it, even though it was an aviation competition. The event was the World Gliding Championships, which were held at Benella in Australia. Britain took gold and bronze in the Open Class, while another bronze in the eighteen-metre class and a strong performance from all the six-man team ensured another Team Gold for the UK.

While it's not hard to understand why glider racing will never be much of a spectator sport, I still find it both disappointing and irritating that the team's impressive performance was considered so inconsequential by the media. And it's not just gliding that is treated with such indifference: the UK punches well above its weight in practically every airsport, from aerobatics and hang gliding to microlighting and parachuting. Yet despite the fact that British sports pilots routinely scoop up a creditable haul of medals (and without a whiff of doping or scandal) it never makes the news. And in a world that's awash with bad news, post-truths and alternative facts, shouldn't we be celebrating real achievement, instead of lauding some vacuous 'celebrity' whose principal claim to fame is that they're famous? ■

Air Racing For The Private Pilot

So, you've passed your PPL, taken friends for a flight and popped over to France for lunch and participated in a club fly-out. Maybe a night and IMC rating, but now what?

After spending all that time and money and loving every moment so far, we all wonder what we can do next to keep the challenges and excitement coming.

Some extend their cross country flights into European jaunts and some take up aerobatics. Maybe a tail dragger course or build your own plane.

How about joining a roving flying club that encompasses the best of all the above?

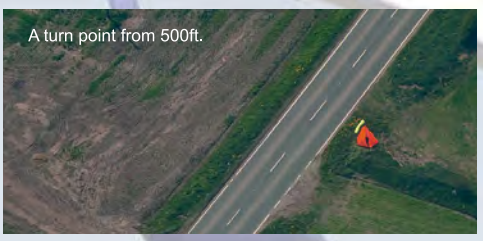
The Royal Aero Club Records, Racing and Rally Association is probably aviation's best kept secret and may be the club for you. They have no permanent club house or airfield base, but their 66 members are made up of a divergent band of aircraft and member backgrounds that makes for the most fun and challenging flying and a great social scene too.

After a check flight with one of the club's check pilots to make sure you can perform tight turns without loosing or gaining height, you will qualify for your FAI International Air Race License. This allows you to compete in the Royal Aero Club RRRA Handicap Air Race series and attempt World and National Aviation Records. There is no charge for the pilot check out but there is a small £30 administration cost for the FAI license paperwork.

King's Cup Winners at Shobdon
Dom Crossan & Roger Scholes

If Air Racing sounds like an exclusive club for uber wealthy toffs, then think again, Handicap Air Racing allows any plane that can fly flat out at 100mph or more to take part. Club Cessna's, Pipers, Robins, Auster's, AA5's and RV's make up the majority of participants. All flown by PPL pilots who are addicted to aviation, wish to push their boundaries and have a lot of fun in the process.

There are eight Air Race weekends a year at different airfields. This year, there are six in the UK and two over the Channel in France and Holland. The weekend starts with all the competitors, navigators, supporting aircraft and ground crew, arriving from all corners of the country. So a great opportunity for a cross country flight. On the Saturday morning there is a practice session of an hour and half, where the pilots and their navigators find the course and practice their turn technique and height management. This is followed by the Saturday afternoon race and a great Saturday night social event. The Sunday race starts at 12:30. After the results are calculated and the historic cups are presented, everyone scrambles to their planes (or cars) and heads home after a fantastic weekend of flying and fun. The cost for entry is £225/plane/weekend with discounts for new competitors.


A turn point from 500ft.

The race starts for each plane as they are flagged off at their handicap speed start time. The slow planes taking off first followed by the faster planes. The course is usually 120 nm long and is four or five laps around a 25 nm cross country course. At each turn point there is usually a large red tent. The planes fly at 500 to 700 feet agl. If all the planes navigate and perform their turns perfectly they should all arrive at the finish line at the same time. Each plane is given two gps units to monitor their tracks and to check if they have cut any of the corners. If a wing goes over the turn point a penalty of 15 seconds is added, if the body of the plane goes over the turn point, that competitor would be disqualified. Accuracy, navigation, tight turns not losing height or speed and wind drift calculations all

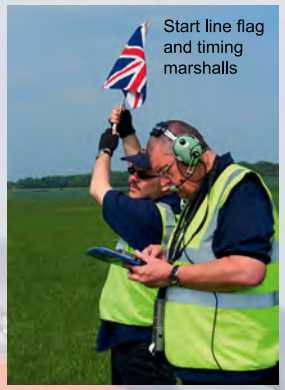

Schneider Winner
Roderick Morton
Alderney

add up to how well you do. With a dive to the finish line from point Alpha, down to 100 feet agl on the final run in, all the planes wait to discover their finish position. Very exciting!

As well as a plethora of aviation's most coveted silverware including the King's Cup and Schneider Trophy, which you can still compete for, there is an accumulated point system that creates an end of season British and European Air Race Champion. The King's Cup and the British Championship Cup is presented at the RAF Club in Piccadilly, usually by Prince Andrew during an annual Royal Aero Club event.


Joanne & Mark Turner
British and European
Champions

So if you are looking for a club that will keep you learning and pushing your personal flying boundaries, while honing your flying skills on all levels, The Royal Aero Club Records, Racing and Rally Association is the 'club' for you. They also need dedicated crew to help in the handicapping room, marshaling, time keeping and general organising. A great place to learn new skills and be part of this amazing fun and inclusive club.


Start line flag
and timing
marshalls

For a chat about the coming season and to gain information on how you can get involved on the ground or in the air please call John Kelsall on: 07760 173261 or email him at: jk@prodec-precision.com.

Diary of events and locations for 2017:

April 22/23.	Leicester
May 13/14.	Holland
June 3/4.	Llanbedr
June 24/25.	Sherburn
July 15/16.	Abbeville
Aug 12/13.	Shobdon
Sept 2/3.	Beccles
Sept 23/24.	Alderney

www.RoyalAeroClubRRRA.co.uk

Dan Pangbourne - Pilot - Aviation Journalist

Books & Gear

■ Prop performance data ■ Book choice ■ Camera targeted by the RAF ■ Tintin aircraft

A more efficient propeller

Hercules aircraft propeller
www.hercprops.com
£1,130 (to suit Continental C85 - units for other GA engines range from £830 to £2,330)

I recently did some comparative test flights with a new Hercules propeller against my older Lodge one. They were both made specifically for my C85-powered Champ.

These are not definitive numbers because the Champ was not at maximum weight and I hadn't finished breaking-in its recently zero-timed engine. However conditions were identical, with me solo and an absolutely full main tank for both flights, conducted within an hour of each other, so they are representative of my normal flying state. The temperature was 14°C, QNH 1021 (but 1013 set on the altimeter) and surface wind 090/8. Climbs were made crosswind.

Beware, I have no idea whether my tacho or ASI read correctly, so these figures can only be taken as comparative rather than absolute and are strictly indicated numbers for comparison purposes only. Climbing at a full throttle, 2,400rpm for three minutes (timed by stopwatch) with the old Lodge nominal 70 x 48in propeller gave me an 1,890 feet height gain or 630 feet per minute climb rate. Revving at just 2,280rpm at full throttle, the new Hercules 70 x 42in prop gave me a 2,110 feet height gain over three minutes, or 703 fpm. I make that an 11.6% performance increase in climb rate.

WOT speed at 1,500 feet was identical with both propellers at 114mph, but the Hercules prop ran at only 2,400 rpm whereas the old Lodge propeller was revving right on the red-line rpm of 2,575. Cruising at 2,300rpm the Lodge prop gave me 98mph whereas the Hercules one gave me 101mph. At a minimum cruise of 2,200rpm the Lodge prop gave me 94 miles an hour whereas the Hercules returned 96mph.

Because it revs at a couple of hundred rpm less than the former propeller for a given throttle position, I will happily bet that the Hercules prop will give me a significant improvement in fuel economy too. ***BG***

Anatomy of a leviathan

Zeppelin Hindenberg – an illustrated history of LZ-129 by Dan Grossman, Cheryl Ganz & Patrick Russell *www.thehistorypress.co.uk £30*. Hardback, 192 pages

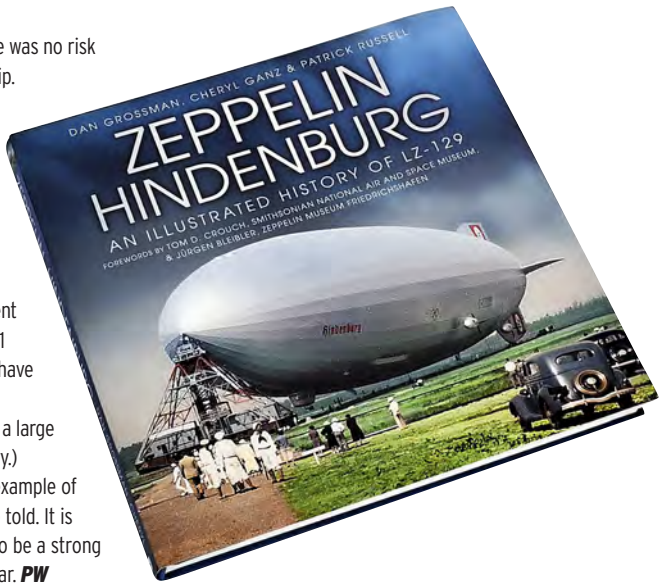
Written by true experts on the subject, thoroughly researched and beautifully (and illuminatingly) illustrated, *Zeppelin Hindenburg* tells a fascinating story and offers a huge amount of information in its 192 handsome pages. Citing hard evidence, the authors also puncture a number of airship and *Hindenburg* myths: it was neither a bomb nor 'highly inflammable' fabric covering that caused LZ-129's fiery demise at Lakehurst, New Jersey in May 1937 – the first seems to have been something of a blame-shifting idea mooted by those responsible for a hazardous 'high landing' in the electrically-charged air following a storm, and sections of the butyrate-doped covering actually survived the fire. Nor was it true that the US Government had refused to supply safer helium lifting gas – there was an embargo, but the Germans made no formal request and, struggling as they were to achieve reasonable payload and range, Zeppelin company engineers were considering dual hydrogen/helium gas cells before they elected to go all-hydrogen (which was readily available, cheaper and gave significantly greater lift).

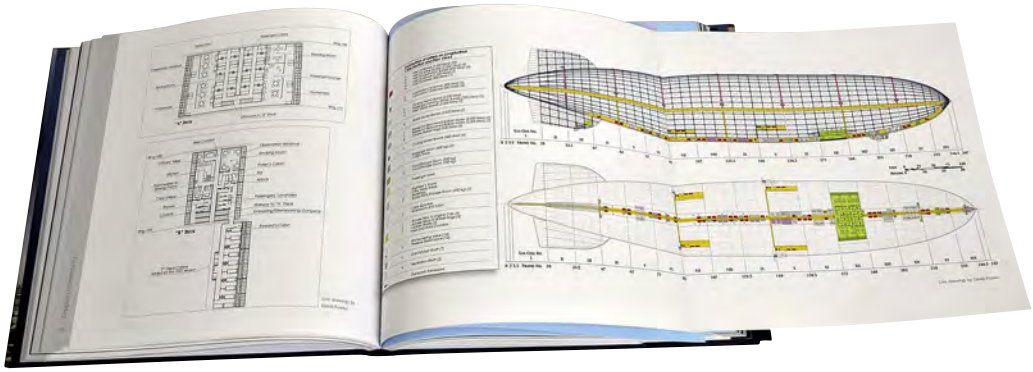
In fact, as one particular fold-out illustration makes clear at a glance, the passenger accommodation in a Zeppelin (green area in diagram) took up an absolutely minute proportion of the overall volume, the rest being almost entirely gas cells. To work at all, the structure and fittings of rigid airships had to be incredibly light. *Zeppelin Hindenburg's* beautifully reproduced period photos reveal how this was done – and show the striking Bauhaus style of the passenger accommodation – in wonderful detail.

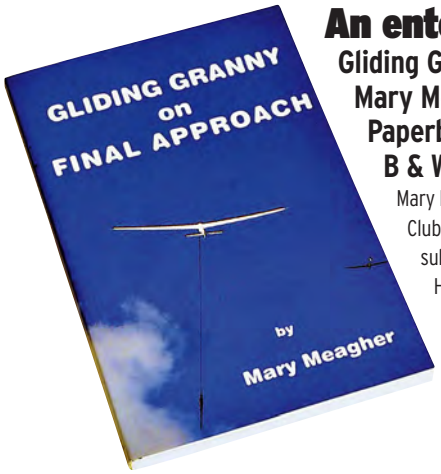
The human side of the story is well covered too. Although they were fast being eclipsed as the speediest means of long-distance travel by aeroplanes – by 1935 Pan Am's Martin 130 flying boat could have flown the North Atlantic route with ease – the *Hindenburg* was the last word in glamorous, if not luxurious travel between the USA and Europe. Even though its cruising speed was less than seventy knots, it was enough to reduce the crossing time to two days – less than half the time taken by even the fastest ocean liners – and there was no risk of seasickness in the quiet and stable airship.

Pilot readers will appreciate the amount of space in the book devoted to how Zeppelins were operated, and today's airline professionals will be interested in the number of crew members involved: when, after 27 years of Zeppelin civil flight operations without a single passenger fatality, the *Hindenburg* went up in flames it was carrying no fewer than 61 crew members and just 36 passengers. (We have all seen the newsreels: astonishingly, 23 passengers and 39 crew members survived, a large number of them with no, or only minor injury.)

Zeppelin Hindenburg is an outstanding example of how well aviation and social history can be told. It is still early in 2017, but this volume has got to be a strong contender for our choice of book of the year. ***PW***







An entertaining tale

Gliding Granny on Final Approach by Mary Meagher *mary.meagher@zen.co.uk* Paperback, 244 pages, colour and B & W illustrations

Mary Meagher only took up gliding – at Booker Gliding Club – at the age of 50. She became an instructor and subsequently also gained her fixed-wing pilot's licence. Holding both British and American passports, her power flying has been split between tugging gliders in the UK, mainly in her 150hp Piper Super Cub, and transiting between her grandchildren in Texas, Florida and New Jersey. She holds a US instrument rating but was irritated to learn it would not be accepted in the UK! 3,000 hours and more than thirty years on, she is still gliding, albeit with a safety pilot after a stroke in recent years.

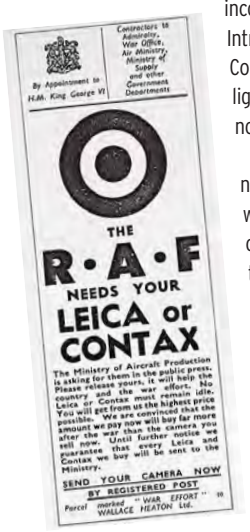
This book outlines some of her flying experiences (it is her second book in actual fact) and is self-published, resulting in a fair number of typos. However, it tells some interesting, and sometimes cautionary, tales of her experiences in gliding, including taking part in competitions, and flying fixed-wing, and she is not shy to 'own up' to things that might have gone better... or could have been worse. She has attained 'Three Diamond' status in her gliding career – Diamond Goal in 1989, Diamond Distance in a competition in 1994 and, finally, Diamond Gain of Height.

The chronology of the book is not always clear, so the reader sometimes struggles to keep up with her – something that I suspect still happens in life! ***JA***

Targeted by the RAF, grabbed as war booty by the Russians

Soviet-era Kiev 35mm rangefinder camera, typical second-hand price from £30 (late model 4M illustrated) to £100-plus (1950s 2A)

In the late 1930s there were only two high-quality 35mm cameras available, and both were made in Germany: the famed Leica and its great rival, the Zeiss Contax. Both had interchangeable lenses and rangefinder focussing. The Leica arrived first but the Contax – especially from the 1936 model II onward – was judged by many photographers to be the better camera, having sharper and faster Zeiss lenses, and a more accurate long-base rangefinder that was incorporated in the viewfinder. Introduced alongside the II, the Contax III even boasted a built-in light meter – something that did not appear on a Leica until 1964!



When, during WWII, the RAF needed hand-held cameras, it was to civilian Leica and Contax owners they turned. Ironically, the Contax production line was totally destroyed in the Dresden raids, so when in 1945 the Russians demanded the rights to the design as war reparation, new tooling had to be made. After trial production in Germany, the whole lot was shipped to the Soviet Union. Thus the Contax became the identical Kiev, manufactured in the Ukrainian city's old arsenal under the guidance of former Zeiss managers and technicians.

The Kiev 4 was still an object of desire in the 1970s, when this reviewer was a camera-mad teenager. Astonishingly, the Soviets kept a mildly-developed version of the 1936 design in production until 1986, long after Western cameras had become automated, electronic marvels. Kievs and their accessory lenses – also closely based on the Zeiss originals – are thus in plentiful supply and cheap to buy. Slow and fiddly to use, they are nevertheless capable of producing results close to what you'd expect from... well, a Leica.

The 1981 Kiev 4M illustrated was a Christmas present from the Editor's eldest son. It is shown here with Jupiter 12 35mm f2.8 wide angle and Jupiter 9 85mm f2 portrait lenses found on eBay, and a turret viewfinder from collectable camera specialist *www.peterloy.com*. The whole outfit pictured could be had for less than £250, so even if you were looking for nothing more than convincing looking 'period' props to add to the Goodwood Revival outfit, a Kiev would fit the bill. Better still, you could take some pictures with the thing! ***PW***

The supersonic bizjet that never was...

Carreidas 160 scale model £24.95 *www.thetintinshop.uk.com*

When I was a lad my interest in aircraft and classic cars (*The Calculus Affair* included a memorable chase involving a Lancia Aurelia) was fuelled by the accurate renderings in Hergé's Tintin books. Artist/author Hergé drew – and later, working with a team of artists – redrew stories featuring types as diverse as pre-war French classics, contemporary lightplanes including a bubble-canopy Candian Chipmunk (for *The Black Island* based improbably in England) and all manner of propliners and jets.

One exception to all the real machines portrayed was the Carreidas 160, a fictional swing-wing bizjet of beautiful proportions designed (and that term really is justified) for *Flight 714* by Hergé studio aviation specialist Roger Leloup.

While I was testing the Kiev illustrated above at the Brooklands Museum, I discovered they had Tintin aircraft models in the shop and the one of the 160 was on special offer at £17.50. It should have come with a Lazlo Carreidas figure, but mine came with Captain Haddock – a happy reminder of my similarly bearded father, another great source of aviation inspiration. ***PW***

Florida Sun 'n Grumman Fun!

Travelling to this great annual fly-in event in style – and ending the vacation with a flying visit to NY

Words & Photos *Graham Robson*

This story began over twenty years ago when I learned the difference between 'what if…' and 'why not?' While taking photographs on the ramp at Fort Lauderdale Airport, on vacation in 1992, a beautiful Grumman Mallard taxied in. In conversation with the pilot, he asked about my plans for Sun 'n Fun. The Mallard was owned by a friend, he was taking his Super DC-3, and he asked if I would like to come along too! At the time, there seemed more reasons in my mind to decline than accept: rental car return, existing motel reservations, and a wife with other plans… you get the point. Reluctantly I turned down the kind offer. Later that week, having driven to the show, I met the pilot again, where he insisted I call him before making plans for the following year and be sure I joined them – no excuses.

That pilot was Charlie Clements and he and his Mallard-owning friend, Jack Bart from Connecticut, flew to Sun 'n Fun every year, meeting up with a bunch of like-minded flying enthusiasts and pilots. Following that chance meeting, I took Charlie's advice to join them the following year, and since then the show has become a 'must do' in my calendar and I have become used to saying 'why not' more easily.

Nowadays, my Sun 'n Fun vacation starts with a rental aeroplane for some local touring around Florida, before heading up to the show. Last year my usual aircraft was not available so I was put in touch with a friend of a friend, Danny, with a nice 172SP he'd rent me. On learning I have a 1947 vintage Cessna 120, Danny mentioned that his father had operated a Cessna 120 in Guyana in the late 1960s. This piqued my interest as my

120 was in Guyana in the '60s, registered 8R-GBO. An immediate call to his father confirmed, amazingly, that his 120 was my 120, and was very much in his logbook over 45 years before. This immediate kinship, an invisible bond between pilots, sealed a friendship and Danny now makes his 172 available to me whenever I'm in Miami, which brings me to this year's adventure.

An aeroplane ready for me at Tamiami airport and sublime weather are a recipe for stress-free living, and no flying vacation in Florida is complete without a trip to Key West, the city at the end of the string of sandbar islands that stretch south-west into the Gulf of Mexico. A south-westerly VFR departure had me climbing towards Key Largo, where the mainland stops and the myriad of small islands begin, the cobalt-blue sea below

scored with the swirling patterns of speedboat wakes. Marathon was an easy 45 minute flight; not really necessary but it's a convenient place to break the journey. The airport gets very busy around springtime, hosting many visitors from the northern US states and Canada, where winter still hangs on. Known locally as 'snow birds', they fly down in droves, in anything from small, single-engine GA up to expensive corporate jets, making this non-towered airport a place where you need to be on your game. The airport's 1,526m runway is in the centre of Marathon itself, right alongside the US-1 highway and taking up almost half the length of the town. Regular position calls during your approach to the field are a good idea, on the 'common traffic advisory frequency' (CTAF), as the mix of traffic can be anything from a Waco biplane to a Gulfstream 5. With no ATC, it is interesting to hear big jets making the same radio calls we make at a small GA field here on our lowly A/G frequencies; it is truly see and be seen.

Danny's lovely Cessna 172SP sits waiting for Graham at Tamiami

Suitably refreshed, it was now a very short hop to Key West International. The forty-mile flight requires passing the US Navy base on Boca Chica Key and careful avoidance of restricted area R-2916, for which the annotation on the chart 'unmarked balloon on cable to 14,000ft MSL' says it all! Key West Navy radar gave a very good and friendly service, requesting only that I remained south of the shoreline passing the base and reported abeam the Control Tower, at which point the international airport was clearly visible on the next Key, ➔

and a handoff to Key West Tower elicited clearance for a downwind right join to Runway 9, number two to a Canadair RJ on final. Key West has a mandatory $15 parking charge – understandable as it's a full passenger/port of entry airport. After shutting down at the FBO, the 172 was 'spot-parked', as parking space is tight; they then arranged a hotel for me and called a cab to get into town – it was a bit too far to walk comfortably in the heat. The vacation had begun.

America is blessed with the freedom to embrace flying with common sense, which opens up many interesting opportunities denied to us in the UK. I implore any pilot visiting south Florida to give it a try; it is truly flying at its best. My next flight after returning to the Miami area was a good example of this.

VFR traffic transiting north or south between Miami and the Fort Lauderdale area has a choice of radar service through each successive airport control zone, or flying VFR along the shoreline at or below 500ft – all strictly legal and most convenient for controllers and pilots alike. Having enjoyed lunch at the wonderful ramp-side Jet Runway Café at Fort Lauderdale Executive airport, I contacted Miami Approach on climb-out, giving my position and intention to route southbound down the beach, as per the approved procedure. The controller pointed out similar traffic, one mile ahead and also southbound, and advised me to remain offshore at or below 500ft. There followed twenty minutes flying alongside and sometimes below the level of beachfront skyscraper hotels and luxury apartment blocks, with kitesurfers below and passenger jets out of Fort Lauderdale and Miami International airports departing over me. The route is both north and southbound, uncontrolled and strictly VFR: every pilot is responsible for traffic sighting and avoidance, and it can be quite busy during the summer months with banner-towing and sightseeing as well as the regular GA transit traffic.

I joined the coastline southbound at Hallendale Beach, just south of Fort Lauderdale, eventually clearing Miami's Class B airspace at the visual reporting point (VRP) of Government Cut, the very southern tip of Miami Beach, where the cruise liners depart and, until some years ago, Chalks Seaplanes operated. Turning back inland towards Tamiami airport, it was time to return Danny's 172 and prepare for part two of my adventure.

1947 vintage beauty

Jack Bart keeps his beautiful 1947 vintage G-73 Mallard in Florida over the winter, for its annual maintenance check, before flying it home to Connecticut in the spring, via Sun 'n Fun of course – and I have the very great privilege of being one of the crew for this trip each year. As usual, we rendezvoused the evening before in Fort Lauderdale for dinner and a few beers, ready to head out early next morning to Fort Lauderdale Executive. This time, Jack kindly offered me the chance to fly right-seat for the trip to Lakeland, under his guidance as I don't hold a twin rating.

Resplendent in period Grumman 'house colours', the Mallard looked out of place on a ramp crammed with the latest corporate jets, yet managed to outclass them all. There was no doubt it was the biggest attraction for the ramp handlers, looking incongruously stylish amongst the generic biz-jets lined up either side.

Jack talked me through the starting procedure, quite normal I expect for those who fly large radial engine types, but for a mere four-pot Continental flyer like me, I needed to listen up. The starboard engine is started first; switching on the boost pump and priming being the pilot's job, the switches are located upper left on the overhead panel. Look outside, count nine blades, magnetos *on* and push the starter, remembering to turn off the boost pump when it fires into life. Repeated for the port engine, this brought a satisfying rumble from the two Pratt & Whitney R-1340s mounted very close behind our heads. Releasing the brakes, some judicious left braking was required to get the nosewheel to turn as we pulled out from the corporate jets and ambled slowly

A beauty inside and out, the Mallard won an award at last year's Sun 'n Fun event

Passing abeam the US Navy Base on Boca Chica Key in the Cessna, with Key West International already in sight ahead

Southbound along Miami Beach at 500ft: perfectly legal and tremendous fun, though a good lookout is essential at all times

Above: Packing for the party – loading up on the World Jet East ramp at Fort Lauderdale Executive, heading for Sun 'n Fun

Below: Burning sixty USG/hour, the Mallard is a thirsty lady and not cheap to operate!

towards the holding point. Engine run-ups are done at 1,700rpm, cycling the props three times, feather-check and then exercise the props once again, all controlled from the overhead panel, the throttle movements requiring a rather different movement to normal as, being positioned above us, the levers are 'jockeyed' against each other. Magneto switches are also in the centre of the overhead panel and, with these and the carb heat checks completed, we were ready to go. As we pulled up to the holding point for Runway 9 we called the Tower "ready for departure" and, with clearance, moved forward into position. The boost pumps were switched on once again – with a reminder from Jack to turn them off at 1,000ft – engines run up to 30in manifold pressure, increasing to 35in for takeoff, and brakes released, bringing the Mallard's characteristic rasp to a crescendo, and we were off.

Lift off came in a rather flat attitude, slightly alarming as we faced a line of high-rise condominiums ahead along the beach; although four miles away they seemed closer at that moment. Once a positive rate of climb was established, Jack retracted the gear, helping to reduce considerable drag from the decidedly un-aerodynamic airframe, and we throttled back to 30in mp, set 2,000rpm and began a slow climbing left turn onto a north-westerly heading, with the deafening rasp only slightly abated and reverberating, as the props were not yet synchronised. We were tracking towards the Pahokee VOR on the south-eastern corner of Lake Okeechobee. The lake is thirty miles end-to-end and one of the few easily recognised landmarks in the otherwise featureless central Florida.

Flying the lumbering Mallard is an exercise in learning...

The cockpit, roomy enough in flight, required some finesse when climbing in to avoid knocking anything or scalping myself, and gives a lookout somewhat less than I am used to in my Cessna, akin to peering through a letter box. This is very apparent in turns, when looking across to the other pilot's side, as the shallow windshield is so far forward of the seating position. Cruise is a sedate 130kt, with 24in mp at 1,800rpm. The din from the engines is only slightly diminished by the headsets and even those in the back wear them, with intercom available between the cockpit and the forward seats in the passenger cabin. Flying the lumbering Mallard is a textbook exercise in learning exactly what is meant by adverse yaw: rudder is a must when rolling in any aileron to avoid the slender nose wallowing around in front of you, acutely exaggerated by the hinges for the forward hatch ahead of you. Ignoring this will elicit complaints from those in the back trying to enjoy their coffee or rum and Coke!

All pilots flying in to Sun 'n Fun are required to read the lengthy and ominous-looking arrivals procedure document. Regular GA traffic is required to position at Lake Parker, north-east of the field and follow a prescribed route to final. The alternative, for which we had permission, is the much simpler 'warbird arrival' that brings an arrival path from the south, approaching the field mid-point and turning downwind right for Runway 9.

Jack asked me to "just fly the aircraft"; he'd make any power adjustments and advise anything else I was required to do. The wind was brisk from the north-east, making its presence felt as we began our descent and positioned for arrival in the circuit. I must say, as a novice in such a large type, I flew a pretty accurate and precise pattern, now acutely aware of exactly why the Mallard has such large rudder pedals, its huge slab-sided fuselage and tall fin being very efficient at catching the wind. Turns require massive rudder inputs and holding the centreline from two ➔

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Coasting out over Jacksonville Beach, Florida, the glorious view framed – and rather limited – by the Mallard's shallow, forward-set 'post box' windscreen

miles out had me almost standing up. The feeling was like being astride a huge horse, as the co-pilot's pedals are much wider spaced, designed this way for access to the forward bow area, further assisted by the co-pilot's yoke being articulated, to allow a modicum of 'throw-over' for easier access.

Landings at Sun 'n Fun are closely controlled to allow up to three on the same runway at the same time – line astern of course – aiming for different coloured spots on the runway, meaning pilots can often be instructed to land 'very long', as was the case with us. I flew the aircraft low along the runway for almost two-thirds of its length, which, by then, was making my right leg ache, such was the force to hold it straight. (I'm sure any regular Mallard pilot would trim the rudder a little to assist, but as this was my first time the rudder trim was not a familiar thing and I felt it was easier all around just to grin and bear it!) Reaching our touchdown point, Jack pulled the power and I held the nose off until we slowed even further, producing a rather gentle touchdown, which, after all the exertion, was rather a non-event and we rolled out to the very end of Runway 9. Here we were again!

The week of Sun 'n Fun is a delight, combining the frenetic activity of an international airshow, with endless sales booths for anything and everything associated with our hobby, interlaced with a gentle and balmy holiday atmosphere. Having tried what seems like every motel in the area over the years, we now do it in style in a rented five-bedroom house with pool, across the road from the show entrance, that becomes a 'pilot cave' for the week of the show. Our disparate bunch includes private, corporate, airline and aerobatic pilots and friends from New York and New Jersey, Connecticut, Louisiana and Texas, as well as Brazil, Hungary and us Brits. The previous year, Hungarian pilot and Bonanza owner Ferenc, who flies his lovely V-tail from New Jersey each year, had invited me to do some flying with him in the New York area when I was next there, and why not this year after the show? A great idea, however, there were no seats available to fly up with him in the Bonanza. Jack suggested I fly up to New York with him in the Mallard, allowing me to meet up with Ferenc before heading home to the UK. With some hasty rearrangement of homeward flights, this wonderful opportunity became a plan. Sunday 10 April saw us carefully stowing our luggage and the week's shopping bargains into the Mallard, as we prepared for the 900nm-plus journey north to Bridgeport, Connecticut. We were lightly loaded with only Jack, his long-time co-pilot and crew chief Al Furnari and me on board. The Mallard's R-1340 Wasp engines are thirsty, consuming together up to sixty USG/hour (a whopping 230 litres/hour), so fuel planning is an important detail, not only for endurance but cost!

The week of Sun 'n Fun is a delight... with a gentle and balmy atmosphere

Some of the gang, hanging out at our 'pilots' den', the incredibly convenient house we rent for the week of the show

Our first stop was to be Palatka, a municipal field in the north-east of Florida, which enjoys one of the cheapest fuel prices in the area. Departure from the show is as carefully choreographed as arrival, with stream takeoffs from both runways to expedite the traffic flow. Taxying to the holding point requires no radio calls, following instructions from the motorbike outriders. The first call is from the mobile Tower close to the threshold when you are next in turn for departure. Watching the aircraft ahead and alongside, we began our takeoff roll, following the prescribed departure procedure of straight ahead on runway heading for three miles before turning on course. Monitoring departure frequency to gain a mental picture of others ahead and behind us, we began our ponderous journey north.

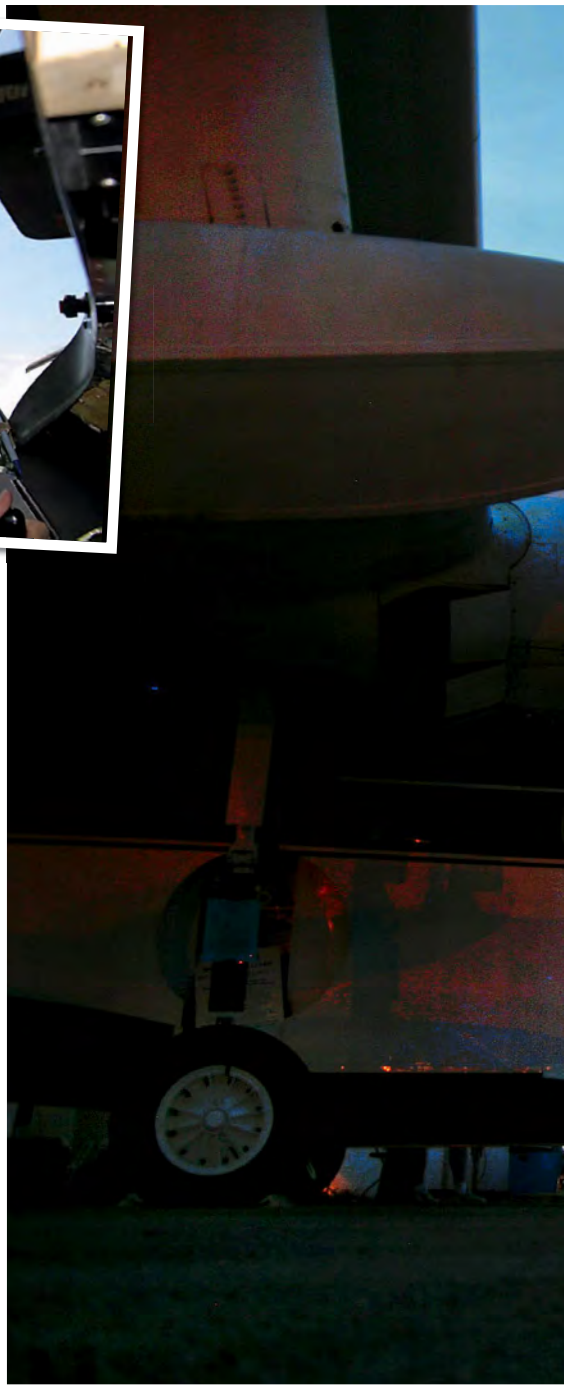
After filling the tanks at Palatka our takeoff was anything but sprightly as morning temperatures were already close to 25°C, and we seemed to use every inch of the available 6,000ft runway. Our route took us offshore south of Jacksonville and we settled in for a thoroughly pleasant and scenic trip, gently following the coastline up past southern Georgia and on towards South

Carolina. Once established in the cruise, Jack had me swap places with him 'up front' and I enjoyed some left-seat time, feeling like a king on a throne. We were receiving 'flight following' radar service, similar to traffic service in the UK, from successive radar centres along our route, though radio chatter was minimal. Nearing Charleston, we saw a huge C-17 transport descending towards the Air Force base and, crossing overhead, clearly saw the vast Boeing production plant where the 787 Dreamliner comes together. Three and a half hours after takeoff we prepared for landing at Wayne Executive airport, South Carolina, another bargain fuel price pit-stop, so I vacated the captain's seat and swapped back to passenger mode. The approach to the north-easterly runway brought us close to Seymour-Johnson Air Force base and the ramps full of F-15 fighter jets could be seen to our right as we droned down the final approach.

Refuelling completed in short order, after refreshments and ablutions we were soon on our way again, commencing our slow climb back up to 5,500ft with me, once again, invited to take a seat up front. The weather played into our hands the entire flight, with exceptional visibility affording superb views of America's eastern seaboard, the shiny, glazed skyscrapers of Atlantic City being visible from thirty miles away. Towards the end of this final 420nm leg of the journey, we chose to head more easterly, out to sea to avoid New York Class B airspace. Keeping clear of this giant inverted layer-cake of airspace, through which New York's inbound and outbound traffic is filtered, reduced our workload from the controllers, as we plied our way north to Long Island. Even from this distance, the distinctive Manhattan skyline was still clearly evident in the dusky late afternoon skies to our west, a view that would be even clearer to me the following day.

As journey's end approached, I relinquished the best seat in the house for the final time as we prepared for our descent into Bridgeport, Connecticut. The strong westerly wind at the Igor I Sikorsky Memorial Airport had us on final approach into the bright setting sun, making hard


A self-indulgent selfie: who could resist?



The weather played into our hands... exceptional visibility affording superb views of America's eastern seaboard

Meeting owner Ferenc on Monday morning, ready for our New York City tour in his V-tail Bonanza

Enjoying a Sun 'n Fun flying display at dusk

work for Jack right to touchdown. Unloading and securing the Mallard was a necessary evil as we battled the severe windchill, quite a contrast from Florida that morning. After more than 900nm in one day it took some time to lose my 'sea legs' from the rhythmic motion of more than eight hours of ponderous flying.

A classic 1960s model

Following the theme of this trip, I was keen to take up Ferenc's invitation to fly in the New York area and agreed to meet at his hangar on Monday morning after breakfast. My hour's drive from Connecticut took me through the Bronx, across northern Manhattan and Hackensack to Lincoln Park airport in rural New Jersey where Ferenc keeps his Bonanza. His is a classic 1960 M-35 model V-tail with a single 'throw-over' yoke, which, after takeoff, he duly threw over to me with the comment "today you will fly the Hudson River VFR corridor. I will give you directions but you will do all the flying and make all the radio calls". What a fantastic opportunity! Again I remembered the difference between 'what if' and 'why not'.

Needless to say I was unprepared, but in reality it was so simple and straightforward, with Ferenc being very familiar with the procedures. Climbing out of Lincoln Park, the weather was rather dull and grey but we could still see the Manhattan skyline in the distance. Heading eastbound towards the Hudson, we would be entering the New York Class B, Special Flight Rules Area (SFRA) route at the reporting point of Alpine Tower, a prominent radio mast on the west bank of the river, south of Palisades Park. The route required flight over the Hudson River at all times, west bank for southbound and east bank northbound. The requirements to fly this unique and awesome route are simple but very precise: monitor the dedicated radio ➔

Passing abeam the recently completed Freedom Tower, on the site of the original Twin Towers, Graham wonders how such flying opportunities are still permitted. Well done FAA!

frequency, remain below 1,300ft and make position and height reports at all the mandatory VRPs.

I reached the river and turned south, having already descended to 900ft, making the call "Blue Bonanza, Alpine Tower, 900 feet, southbound". From then on it was a simple process of listening for other traffic giving their own position and height reports to know what to look out for, look to find them, and be ready for our next position and height reports, which followed in this order: 'GWB' (the George Washington Bridge), 'Intrepid' (the retired aircraft carrier USS *Intrepid* – now a floating museum), 'Clock' (the huge Colgate clockface on the waterfront before Ellis Island), 'Statue of Liberty' and, finally, 'VZ' (The Verrazano-Narrows Bridge, the last bridge before the Hudson River opens into Lower Bay, New York). It is difficult to describe accurately the level of sensory overload one experiences flying this route, with airliners from La Guardia and Newark passing overhead and the vast Manhattan skyline at eye level.

The Bonanza makes a gentle turn around 'The Lady', flying, videoing and photographing... so much to take in

As a special request, Ferenc broadcast to the numerous helicopters in the area that we would circle the Statue of Liberty clockwise, opposite to normal, in order that I got a better view from the right seat – helicopters circle the other way for exactly the same reason, giving their left front seat passenger the good view. In accordance with procedures, we descended to 500ft to circle the Statue, afterwards heading to Coney Island. Turning abeam the rollercoaster at this iconic oceanfront funfair park, I began the return northbound at 900ft and resumed the task of reporting position, height and direction. It was this part of the journey that made the biggest impression: we were heading north on the eastern river shore and, sitting just off my wingtip on the right was the entirety of downtown Manhattan, an awesome sight. My riverfront excursion continued, as we snaked our way further upriver until reaching the United States Military Academy of Westpoint, where we turned west and headed back to Lincoln Park. I could not believe, in the years after the 9/11 tragedy, that such things are still allowed; all praise to the thoroughly enlightened FAA.

As we put the Bonanza away, I reflected on a fantastic week of flying and thought back to where it all began, with a chance conversation more than twenty years ago. ■

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Old Timers

Words and photos by **Peter R March**

IF YOU HAVE AN OLD TIMERS STORY
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philip.whiteman@archant.co.uk

Tiger Moth N9503, Kevin Crumplin's fifth restoration, recently sold to Richard Santus

Somerset's Tigers' lair

Former Sea Vixen instructor at RNAS Yeovilton, boat builder and Tiger Moth restorer Kevin Crumplin waved goodbye to his latest restoration at Henstridge, Somerset on 19 January. Tiger Moth G-ANFP/N9503 (photo above), Kevin's fifth restoration, was first flown last summer but recently sold to Richard Santus. The new owner flew the vintage biplane to the Czech Republic over a period of three days. Leaving Henstridge he routed via Lydd before crossing the Channel. On the journey, Richard encountered strong and very cold headwinds but, wrapped up in a Sidcot suit and thick German flying boots, he managed to get to his home base near Prague on 21 January.

Built in 1939, N9503 was flown by several RAF Flying Schools from December 1939 until October 1951. Registered G-ANFP two years later, the Tiger Moth had been converted for agricultural use by January 1959 but crashed a few months later. The remains were passed around until the derelict fuselage was taken into care by the Mosquito Aircraft Museum in November 1975. Wessex Strut member Graham Horn acquired 'FP in 1999 and started the rebuild, before Kevin Crumplin bought it fourteen years later and successfully restored it to its wartime configuration as N9503.

Four of the five restored Tiger Moths at Henstridge in January

Kevin explained: "Having built a number of aircraft (RV-6, Sherwood Rangers and a Starduster) I became caught up in the Tiger Moth restoration and flying world which has resulted so far in the restoration of the five Tiger Moths." The first, G-AMIV/R5246 was completed in mid 2011 and sold to the Air Fighter Academy/Hangar 10 at Heringsdorf, Germany the following year. This was followed by G-ANEW/NM138 (fitted with anti-spin strakes); G-ADWJ/BB803; G-ALWS/N9328, now owned by Jim Norris but still based at Henstridge; and G-ANFP/N9503. A sixth Tiger Moth, G-BWMK/T8191, which was flown by Kevin when he was learning to fly with the Navy at Plymouth in 1960, is currently in his workshop, along with a Gipsy Moth. "After selling two, I decided to keep the other three and set up 'Tiger Moth Training' to ensure that the Tigers could pay for their basic costs and remain active at Henstridge," Kevin added.
www.tigermothtraining.co.uk
Report & photos: Neil Wilson

Concorde goes inside

Tuesday 7 February 2017 was a memorable day for the Bristol Aero Collection Trust (BACT) as G-BOAF, the last production Concorde built at Filton and the last Concorde to fly, was towed from its compound on the south side of the airfield to a newly-erected hangar half-a-mile away. Having been parked in the open since landing at Filton on 26 November 2003, 'AF looked rather weather-worn as it was manoeuvred past the Brabazon hangar where it was built, across the runway from which it made its first flight on 20 April 1979, and on down the northern taxiway to its resting place in BACT's Aerospace Bristol site. With barely centimetres to spare Concorde was inched carefully into its display hangar. Over the coming months it will receive a great deal of TLC to become the focus of a unique 'Concorde Experience'. Other 'Bristol' related exhibits will be put on display in the adjacent exhibition halls before Aerospace Bristol opens to the public later this summer. *www.aerospacebristol.org*

Weather-worn after years of being parked out in the open, BACT's Concorde seen shortly before its move

The new Concorde hangar at Aerospace Bristol

G-BOAF being towed onto Filton's runway in front of the Brabazon hangar...

...and inched into its new display hangar

Shackleton taxi

The BBMF and Canadian Warplane Heritage Lancasters are both presently undergoing engineering work. Coincidentally the taxiable Lancasters of the LAHC at East Kirkby and BCMC at Nanton in Canada are also inactive at present. It therefore seemed unlikely anyone would be able to see any such large Avro 'in action' for some time. However, on 28 January at Coventry Airport an Avro displaying similar features roared into life and was taxied majestically around the airfield to the delight of an appreciative audience. A number of fare-paying 'passengers' were on board and enjoying the experience.

Shackleton WR963 fires up for a taxi run at Coventry on 28 January

The aircraft was Shackleton WR963, owned by Dave Woods and maintained by a small band of dedicated volunteers. Although not airworthy the ambition remains that one day it may be possible to return this beautiful aircraft to flight. It is hoped that further taxi events will follow, perhaps on a monthly basis, serviceability permitting. The aircraft can carry up to eight 'passengers'. For further information about future passenger opportunities contact Dave Woods at mailto:*davesxjs@live.co.uk*

Report & photo: Tim Badham

Gulf historics

Wherever you travel in the world you can come across relics of that country's aviation past. This is no less the case in the Middle East where there is a host of preserved aircraft in mainly military collections. In Iran the Saadabad Cultural and Historic complex in the north of Tehran includes a small Military Museum displaying outside a Mil Mi-24 Hind, F-84G Thunderjet, F-86F Sabre and a DHC-2 Beaver. The Sabre is particularly interesting as it is painted in the colours of the former Imperial Iranian Air Force aerobatic team, the *Golden Crown*. Formed in 1958 with four Thunderjets, the team re-equipped with Sabres in 1961 which they flew until 1971.

The Sultanate of Oman Armed Forces (SOAF) Museum in Muscat opened in 1988 in Bait Al-Falaj Fort, one of the country's oldest buildings. It has a representative collection of six mainly British aircraft types that have served with the air force since it was formed in 1959: JetRanger, Strikemaster 82A, Beaver AL1, Hunter F6, Skyvan and Provost T1. The ex-Army Air Corps Beaver (XP824) and ex-RAF Provost (WV494/G-BGSB) were purchased in the UK and painted in SOAF colours for display. The latter has the serial XF868, which was carried by one of the original Provosts flown by the SOAF.

The Royal Saudi Air Force (RSAF) museum opened in 1999 on the edge of the King Abdul Aziz airbase in Riyadh. The museum has some twenty aircraft on indoor display in excellent condition, while others displayed outside are unfortunately exposed to the harsh desert sun and dust and haven't fared so well. The history of the RSAF from its formation in 1921 is well represented and includes DH9A and Westland Wapiti replicas and a former Italian AF Caproni Ca100. In 1935 some Saudi pilot cadets were sent to Italy to learn to fly, and in 1936 three Ca100s were delivered together with an Italian instructor, remaining in service until 1939.

After WWII the US government supplied aircraft including T-6 Texans and Douglas A-26 Invaders to the RSAF, examples of which are on display. The RSAF has purchased many British frontline types including Vampires, Hunters, Strikemasters, Lightnings and Tornados which are well represented in the museum. In 1955-56 the RSAF took delivery of twelve Chipmunk T20s from the last of the production line at the de Havilland Chester factory. One of these is also on display.

Report & photos: Nigel Hitchman

F-86F Sabre painted in the colours of the IIAF *Golden Crown* aerobatic team


SOAF Museum in Muscat at the Bait Al-Falaj Fort


Oldest original aircraft in the RSAF museum, the Caproni Ca100


One of the A-26B Invaders supplied to the RSAF by the US government

Lightning F52 '610' was bought back by BAC and then presented to the RSAF museum

Fennec goes to France

On 17 January T-28A Fennec N14113 carried out two local flights in the Duxford area flown by Radial Revelations' syndicate members Martin Willing and Ray Corstin. This was a prelude to it being ferried by Martin to its new French owners at Nangis Les Loges, south-east of Paris. Popular in British displays, the aircraft has been based at Duxford in the care of the Aircraft Restoration Company since 3 November 1997, having been ferried in from West Palm Beach, Florida by Martin Courage.

Built as T-28A Trojan 51-7545 in 1952, it was flown by the USAF as an advanced pilot trainer until 1956. Supplied to France in 1960 it was modified by Sud Aviation to become T-28 Fennec No 119 for the Armée de l'Air's Light Aircraft Ground Support Squadron (EALA) and was flown in the counter insurgency role in Algeria. Retired in 1967 No 119 was sold to Waco-Pacific Inc of Van Nuys, California as N14113. From 1973 to 1978, it was operated by the Haiti Air Force as FAH 1236. In 1979 it was converted by Hamilton Aviation to NA-260 Nomad configuration. After its arrival at Duxford it was repainted into its former French desert camouflage scheme with serial number 119 and adopted the artwork *Little Rascal* on its engine cowling.

Radial Revelations' Fennec was flown by Martin Willing for the last time at Duxford in mid-January

Sad at parting with the highly rated airshow performer, Martin Willing said: "It has been a blast and I wouldn't have changed a thing!"

Report & photo: Col Pope

Miles Hawk Major heading for Scotland

Montrose Air Station Heritage Centre (MASHC) is collecting Miles M2H Hawk Major G-ADMW/DG590 from long-term storage at RAF Stafford. This rare survivor of the type is being gifted to MASHC by the RAF Museum (RAFM) as it is no longer considered relevant to its collecting policy.

G-ADMW was one of 57 M2Hs constructed by Phillips and Powis Aircraft at Woodley and was flown by owner A C W Norman in the King's Cup Air Race on 7 September 1935. Operated by the Portsmouth Aero Club prior to WWII, it was impressed into military service, along with nine other Hawk Majors, for communications use. Repainted in a military scheme and allocated serial DG590, its service included periods at RAF Wyton and Swanton Morley. One of only four M2Hs returned to civil use, it was purchased by F G Miles at a disposal sale held at Kemble in 1946, and initially used by the Reading Aero Club. Passing through the hands of various other operators, its final civil owner was John Gunner who bought it in 1952. He kept 'MW at Sleap while he was based at Shawbury flying Vampires.

The Hawk was restored to military colours before making its last public flight at RAF Ternhill airshow in 1965. It was donated to the Air Historical Branch then stored at various locations for the RAFM. The Hawk Major remained in store, apart from loan in 1988 to the Museum of Army Flying at Middle Wallop for about eighteen months, ending up with other RAFM surplus aircraft at Stafford.

The MASHC expressed an interest in obtaining the Hawk for permanent display as centrepiece of an exhibition describing the history of flying training at Montrose. Curator Dr Daniel Paton explained: "One of the strengths of our bid was the link between RAF Montrose and Miles aircraft in WWII. Montrose was home of No 8 Flying Training School from 1936 to 1942 and No 2 Flying Instructors School from 1942 to 1945. There were large numbers of Miles Masters here from 1940 onwards and smaller numbers of Miles Magisters, the military version of the Hawk. The Heritage Centre offers a comprehensive overview of the contribution made by men and machines at Montrose since before WWI as the first operational air station established in the UK. *wwwrafmontrose.org.uk*

Report: Tim Badham


PHOTO: TIM BADHAM

Rare Hawk Major G-ADMW/DG590 briefly on display at the Army Air Corps Museum at Middle Wallop

G-ADMW a visitor to Coventry in August 1955 for the King's Cup Air Race meeting

JMS moves its North American Yale

The Airbus Restoration Group JMS (Je Me Souviens – 'I remember') at St Nazaire celebrated its 25th anniversary last year with a public presentation of its latest project, a rare North American Yale. Built in 1940 as part of an order from France for 230 NAA64 P2s ('Perfectionnement 2 places') this Yale (c/n 2214) was not one of the 111 aircraft delivered to French training squadrons. It was one of the remainder offered by North American to the RAF, but it was declined. They were eventually sent to RCAF training squadrons where they were named 'Yale'. No 2214, with the serial RCAF3450, was used by the Service Flying Training School (SFTS) at Borden, Ontario. Retired in September 1946 it was one of 39 bought by Ernie Simmons and stored in the open at Tillsonburg, Ontario. It found its way to the then Confederate Air Force at Hobbs, New Mexico and was purchased from the CAF at Midland, Texas in 2012 and transported to France – 72 years late!

1940 built NAA64 P2 and former RCAF Yale at St Nazaire last year


Part-dismantled Yale being lifted onto a lorry for transport to La Baule on 17 January 2017

By the end of 2016 JMS had made good progress with the restoration and it was ready to be taken by road to a hangar at La Baule, where a team at MAPICA (Musée Aéronautique Presqu'Île Côte d'Amour) have the task of finishing off the rebuild, fitting the controls, engine and instruments. It is expected that the Yale's Wright R-975 Whirlwind will be ready to install by July. The move took place on 17 January 2017 when the aircraft 'took off' on a low loader and 'landed' about an hour later in La Baule. *www.mapica.org*

Report & photo: Terry Frogatt

Rare Hungarian sport plane restoration

The Hungarian Vintage Glider Club has taken on a new challenge following completion of a Blériot last year. The new project is to restore the last remaining pre-WWII Hungarian sport aircraft, MSrE M-24 HA-NAN, to static display standard. Five of these 100hp Hirth HM504 powered, single-seat, low-wing monoplanes were built in 1938, two of which were acquired by the Egyptian Air Force. The team spent several years negotiating its return to Hungary and is now seeking public support to assure its preservation, stress its historical significance and share it with the public by exhibiting the aircraft in a worthy place. The restorers plan to fully document the restoration process and engage students from the Budapest University of Technology and Economics in the project.

The Hungarian Vintage Glider Club's very rare M-24 Sport, obtained from Egypt for restoration in Budapest

Goodbye Navy Lynx

Pair of Lynx HMA8s of 815NAS over Somerset prior to decommissioning in March

The last RN Lynx helicopters with 815 Naval Air Squadron will be decommissioned at RNAS Yeovilton on 23 March. Entering service in September 1976, the Lynx HAS2 was initially developed by Westland for ASW hunter-killer duties operating from RN destroyers and frigates. Over the past forty years it has served with four squadrons and 45 flights on 137 ships. In 1982 Lynx HAS2s joined the Falklands Task Force and on 3 May, a Lynx conducted the first combat-firing of a Sea Skua missile, attacking the Argentine patrol boat *Alferez Sobral*, inflicting considerable damage. This was the first use of sea-skimming missiles in the conflict. The original HAS2s were up-graded to HAS3 standard of which eighteen were specially modified as HAS3GMs for shipping protection in the Persian Gulf and the 1991 Gulf War. The HAS3ICE was a utility modified version for use on the Antarctic patrol vessel HMS *Endurance*. From 1993 to 2002 45 Lynxes were upgraded to HMA8 with the fitting of a new tail rotor, repositioned Seaspray radar and the distinctive nose structure with the incorporation of the turret-mounted Sea Owl Passive Identification Device. For the past twenty years 815 NAS Lynxes have been primarily involved in maritime security and counter-terrorism/ piracy/narcotics operations around the world. The run-down of the Lynx HMA8 and its replacement by the Wildcat HMA2 gathered pace in April 2016. The retired helicopters are sent to Middle Wallop where they are stripped of components to maintain the last of the Army Lynxes in service and for items that are common to the Wildcat.

On 10 March 2017 No 208 Flight on HMS *Portland* is disembarking the last 'front line' Lynx HMA8 ZF557 to make a farewell flypast over Portland (Lynx base 1982-99), Yeovil (Westland/Leonardo) and Yeovilton (base 1978-82 and 1999-2017). This Lynx will join the last six HMA8s – including the oldest survivor XZ689, XZ691 (which notably attacked the Argentine boat *Rio Iguazu* with Sea Skua missiles on 13 June 1982), ZF558, ZF562 and the final Lynx built at Yeovil in 1988, ZF563 – for the de-commissioning ceremony on 23 March. It is expected that XZ691 will be preserved by the Fleet Air Arm Museum.

London gate guards 'fly' to Cosford

The Spitfire and Hurricane gate guardians were taken down from their mounts at the RAF Museum, Hendon and moved by road to the Michael Beetham Conservation Centre at Cosford at the end of January. Both replicas will be returned to Museum's new entrance on Grahame Park Way in time for the celebrations of the centenary of the foundation of the Royal Air Force on 1 April 2018. The Hurricane IIC 'Z3427' currently in the markings of No 121 (Eagle) Squadron, based at Kirton-in-Lindsey, Lincolnshire in the summer of 1941, will be changed to those of the Hurricane I flown by Sgt Ray Holmes of No 504 Squadron from RAF Hendon on 15 September 1940. In 2004, parts of his Hurricane were successfully excavated and are currently displayed in the foyer. The new scheme for the Spitfire has yet to be decided. ***Report & Photo: RAF Museum***


RAFM Hendon gate guards, replica Hurricane and Spitfire being prepared for their move to Cosford for refurbishment

STEPHEN SLATER
Stephen is CEO of the Light Aircraft Association, Vice-Chair of the General Aviation Awareness Council, flies a Piper Cub and spent seven years helping restore the 'Biggles Biplane' 1914 BE2c replica

1937 was a vintage year

With the country at peace and stable, and (almost) financially solvent again, it was the heyday for British aviation

If there was one year in history when you might like to have been around an airfield, what year would it be? My proposal, such as it is worth, is eighty years ago. The year of 1937 marked an upswing of optimism as Great Britain and the world finally started to recover from the 1929 financial crash, enhanced at home by the coronation of a new monarch, King George VI. It was also a year when some great aircraft took flight.

Even the burgeoning threat of Nazi Germany didn't detract too much from the spirit of the aviation community. For many, the beginning of the RAF's pre-war expansion simply meant a route to more exciting flying, either with the armed forces reserve and auxiliary arms, or via sponsored flying club and civilian air guard schemes.

Eighty per cent of aircraft flying were Moth variants

On 26 June that year, the annual RAF Display at Hendon saw a massed flypast of 260 aircraft in five columns, principally comprising Armstrong-Whitworth, Hawker and Gloster biplanes, as the immortal Spitfire and Hurricane were still on the verge of entering squadron service. The armada did, though, include monoplanes: five squadrons of Avro Ansons, as well as Blenheim, Whitley and Vickers Wellesley bombers.

On the civilian front, production of the stylish de Havilland Dragon Rapide was in full flight at Hatfield, supplementing the company's global sales of Moth and Tiger Moth trainers. De Havilland had already expanded the Moth theme to cabin aircraft with the Puss, Leopard and Hornet Moth types, and at British airfields it was estimated that eighty per cent of aircraft flying were Moth variants.

Among the new de Havilland types that took to the air in 1937 was the DH94 Moth Minor; a clean, sporty-looking, open-cockpit two-seat monoplane powered by a ninety-horsepower Gipsy Minor engine, a new cheaper variant of the ubiquitous Gipsy Major line. Designed to replace the now venerable DH60 Moth aircraft, the Minor was priced at just £575.

It was said at the time that a 'Hatfield Man' could be distinguished at any aviation gathering anywhere in the world by his demeanour, writing and even his way of speaking, stressing certain words. One of de Havilland's hallmarks was the use of a particularly elegant Roman typeface throughout the factory. It was even said that when there was a strike at the works, the same typeface adorned the workers' protest signs!

Perhaps the one aircraft of 1937 I would most have loved to have seen in the air was the DH91 Albatross. Built for Imperial Airways, it was one the most elegant airliners ever built. Powered by four air-cooled, inverted V-12 engines, it featured an innovative air-ducting system from small apertures on the leading edge of the wings that allowed almost perfect streamlining of the engine installations. Equally revolutionary was the moulded ply and balsa sandwich construction of its fuselage, which was later to be used in the de Havilland Mosquito.

Even the largest aerodromes were unsullied by tarmac runways

At the time, even the largest aerodromes around the UK were unsullied by tarmac runways. Most were large, circular grass airfields allowing into wind takeoff in any direction. While there was a degree of air traffic control by red, white or green lights, either from an Aldis lamp or flare pistol, there was no airspace to bust. Gatwick was still a horse racecourse while Heath Row was merely a small Middlesex village next to the Fairey Aircraft Company's aerodrome on the Great West Road from London to Bristol. No wonder then that flying for fun was booming.

In addition to de Havilland types, a typical airfield might see Blackburn biplanes offering side-by-side seating, or the latest sleek monoplanes from Miles or Percival. Those in search of lower cost flying might opt for a tubby American Aeronca, now being built in Peterborough and powered by a two-cylinder 36 horsepower engine, produced under licence by J A Prestwich in Tottenham, north London.

The JAP J-99 engine was also used by A R Weyl of Dunstable in Bedfordshire for his low-wing Dart Kitten single-seater, which made its maiden flight on 15 January 1937. Meanwhile just up the road at Barton-le-Clay, the first Luton Minor, a parasol-wing spin-off from the earlier 'Flying Flea' craze, made its first flight on 3 March.

Another design making its maiden flight in 1937 was rather more upmarket. The Chilton Monoplane, built on the Chilton Lodge estate at Leverton near Hungerford in Berkshire by two ex de Havilland Technical School students, Andrew Dalrymple and A R Ward, first flew on 16 April and remains one of the most efficient and, frankly, beautiful ultralight aircraft of the era.

Later in the year, a JAP-powered biplane, designed and built by Joe Currie at Lympne airfield in Kent, received its Authorisation to Fly (and presumably did) on 22 November. The aircraft gained its 'Wot' name because Currie got tired of being asked what he would call it. His response: "Call it what you blooming well like".

Meanwhile, in case you think this is a little too Anglo-centric, just remember that 2017 is also the eightieth anniversary of arguably the most successful light aircraft in history – the Piper J3 Cub. My own personal example, G-ASPS, is a little younger, one of the last of the line built in Ponca City, Oklahoma in 1947. So if you'll excuse me, must go... I've got a seventieth birthday party to organise! ■

Seething

A welcoming airfield run entirely by volunteers – including the flying instructors

Words & Photos *Nick Bloom*

When it comes to airfields Norfolk is spoiled for choice, because so many were constructed in WWII. Many were ploughed under, but quite a few have been preserved and are still in use.

Today I am flying to Seething, which is just ten miles south-east of Norwich. For mid-October the forecast is promising, but it's eleven o'clock before the fog has cleared and the cloud lifted sufficiently for VMC flying. When I telephone before takeoff a somewhat laid-back American voice answers and takes my details, including use of the grass runway, which I was told was possible in an earlier call. The grass alternative to the single hard runway is not shown in my flight guide but is there none the less: sixteen metres wide and 550 metres long, to the left of Runway 24. The American on the phone says, "It's still a bit foggy here, but it's lifting. Should be okay by the time you arrive."

I am trying something new on this flight: in-ear plugs under my David Clarke headset for additional noise attenuation. The idea is to take them out when I get into radio range. They muffle the noise

WWII Control Tower (bottom left in picture, at intersection of trees and bracing wire) has been refurbished as a museum

nicely and help to reduce the fatigue of flying open-cockpit in my Currie Super Wot. This morning, it's a chilly twelve degrees, but not uncomfortable, so I enjoy the passing scenery – at least, what there is of it. For the first half-hour there's barely enough to navigate by, a dull grey haze blanking out much of the view. Gradually the sky lightens and by the time I'm crossing the M11, with Audley End off my right wingtip, I can see Duxford clearly, even though it's a good five miles off to the left. Visibility comes and goes after that, but there's no mistaking Bury St Edmonds.

Ten minutes after overflying Bury, I'm a little worried that Diss hasn't appeared and ponder switching on the GPS. Ah, there it is. Diss has an unmistakeable railway running through it, and it runs straight, providing another means of checking that I'm on course. Just before Hardwick airfield is due to appear, I do turn on the GPS (a moving map Aware), not wanting to overfly the Hardwick circuit which is in fact active – I see someone take off as I drift past. There's another reason for needing the GPS: in today's still rather murky conditions, I don't much fancy my chances of spotting Seething; it's in the middle of nowhere, not a line feature near it.

I fumble the earplugs out and stow them, and call Seething. "Station calling unreadable," comes back, so I throttle back and try again. Without the engine noise, they're "reading me fives". I'm told "24 left" and read back the QFE, take my overhead photos, drop down in a steep, turning sideslip and land. The grass runway is ample and I use less than half of it, before backtracking as suggested by the voice on the radio. Sixteen metres is too narrow for a one-eighty in the Wot, which has no wheel brakes or tailwheel. Rather than get out and lift the tail, I take a risk and run a metre or two into the ploughed but flat-and-dry-looking field alongside, before getting the wheels back onto the grass. The voice on the radio stays with me, warning of loose stones as I taxi across the hard at the 24 threshold (tailskid grinding) and then down the narrow strip of grass between taxiway and more ploughed field. As I near the parking area, the voice on the radio suggests I stop, so I pull the mixture and the prop runs to a halt.

I'm pretty tired after one hour ten and climb out stiffly just as a small welcoming committee arrives. Following introductions, I dip the fuel and there's enough to get back with a twenty-minute reserve but, quite wisely, they suggest pulling the aeroplane over to the pumps and topping up. I hoist the tailskid and they pull on the struts. One of them sets the pump to my required fifteen litres and someone else pours the fuel in for me, then all three help to move the Wot to a suitable parking space with its tailskid in the grass. I am being made to feel more than welcome, as will you, should you visit this particularly friendly airfield.

One of eight volunteer flying instructors, Brian Salter

Above: David and Danny Williams, regular visitors from Nayland in their Grumman Tiger

Below: Debby Thompson is learning to fly at Seething

Heading this welcoming committee is a familiar face I haven't seen for fifteen years, Simon Finlay. We were both (*Pilot* publisher) Archant employees then, one based in Norfolk, the other in Essex, and we worked together on several occasions. Simon is a professional photographer, now self-employed, who has won a number of awards. He is also a keen pilot based at Seething. The others are Greg Shephard, committee member and Brian Salter, who is one of the club's volunteer instructors.

Excusing myself for a moment, I grab a quick interview with two men who have just arrived in a Grumman Tiger. David Williams, who works in building construction, and his son Danny, who is a director in a vehicle refurbishment company, have flown in from Nayland – a twenty minute journey – to buy fuel and get some lunch. They are regular visitors, coming here at least once a month.

I have arrived as lunchtime is approaching and the clubhouse is filling with people. In the check-in office, while paying £25 for my fifteen litres of avgas, I meet Debby Thompson. Debby, 49, is a medical secretary and bookkeeper and has been learning to fly for a year. "I'm not counting, but I think I've done about forty hours," she says. "Today I'm flying circuits." I ask what she plans to do with

Club members and visitors about to be served lunch

her licence. “Oh, I’ll stick to private flying,” she says. She is keen to get a closer look at the Wot, so we go outside and I photograph her alongside it. I ask why she’s taken up flying at this point in her life, and she says, “Once the kids have grown up you think, ‘now what would I like to do for myself?’ I suppose the turning point was seeing my grandkids in the Christmas play, just as I’d seen their parents in their Christmas play and thinking, ‘I’ve been here before’.” As well as taking up flying, she tells me, she now plays the cello.

Greg arrives and we go out to see his aeroplane in one of the hangars. It’s a Fred, painted a cheerful pale blue/green. Greg, 68, used to run a vintage car hire business, “Mostly weddings,” he says. His membership of the Waveney Flying Group and tenancy at Seething began in 1989 when he flew a Jodel. He subsequently sold shares in the Jodel and bought the Fred as a part-built project. “The woodwork was immaculate,” he tells me, “but the VW engine conversion and installation were terrible – for instance the carburettor was on backwards.” He sorted out the engine, finished the aeroplane and now flies it regularly. “Even though it’s a bit slow, the view downwards more than makes up for that,” he says. He has retained a share in the Jodel. I ask him what makes Seething different. “We don’t have a landlord,” he says. “All the club members are shareholders in the airfield. If the hangar doors need oiling, or there’s weeding to do, you have to get on and do it, because there is only us. It does make for an exceptionally friendly and cooperative atmosphere.” There are currently about a hundred flying members, plus perhaps another hundred who are ‘social’.

“We don’t have a landlord – all the club members are shareholders”

Volunteer firemen Bob Palmer and Peter Daines

I meet two social members as Greg and I head back to the clubhouse. Sitting at a suitable vantage point in the hangar, heavily-clad in fireproof outer wear, are today’s two duty fireman, both retired bricklayers. Bob Palmer, who is 68, is a 200-hour lapsed pilot, who has not flown (as pilot) for five years. Peter Daines, 67, isn’t a pilot, but is a club member. I ask how they came to get on the fireman roster. They laugh and say, “We volunteered; it was this or work in the kitchen.” They are partners and are on duty every fourth week. “It’s nice to come out here and socialise,” they tell me, “and even though we’re not flying, we just love to be around aeroplanes.”

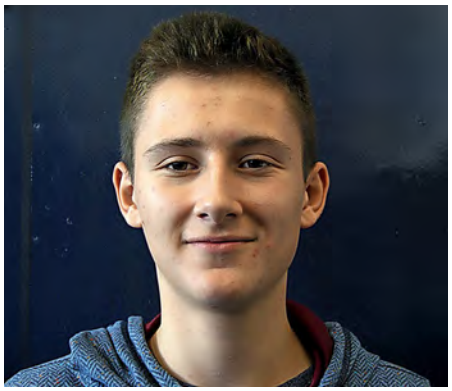
In the clubhouse, Greg goes off to sign me up for lunch – if you don’t book, the only alternative is peanuts, crisps and chocolate at the club bar – and I get talking to another student. Sebastian Southgate is seventeen and a Cadet in the Great Yarmouth Squadron, and has had ten hours free flying training on a scholarship. The Waveney Flying Group has links to the Air Cadets (also other

charities). In addition, the club organises an annual airshow; yet another way in which it supports the local community.

Sebastian is now continuing his flying training towards a PPL. I ask if that means a career in the airlines. "No," he says, "after taking my 'A' levels, I plan to join the RAF. I've wanted to be a pilot since I was eight. Learning here may not be the fastest route to a PPL, but here I'll be learning from people who instruct because they love flying, not because they're getting paid to do it. The instructors here are all very experienced and the social side is a big plus too."

The next person I meet is Ben Pettet-Ellis. Ben used to sell cars, but he and his wife recently became full-time foster parents. "It's freed up just enough time for me to do something I've always wanted to do, which is learn to fly," he says. He explains that he's here to apply for social membership, which at the Waveney Flying Group also operates as a kind of probationary period so that the club can size you up before you start learning to fly. (Mainly to see if you're willing to muck in and help with the chores, according to a committee member.)

Greg arrives to tell me that my lunch is on the table awaiting me, but I pause just



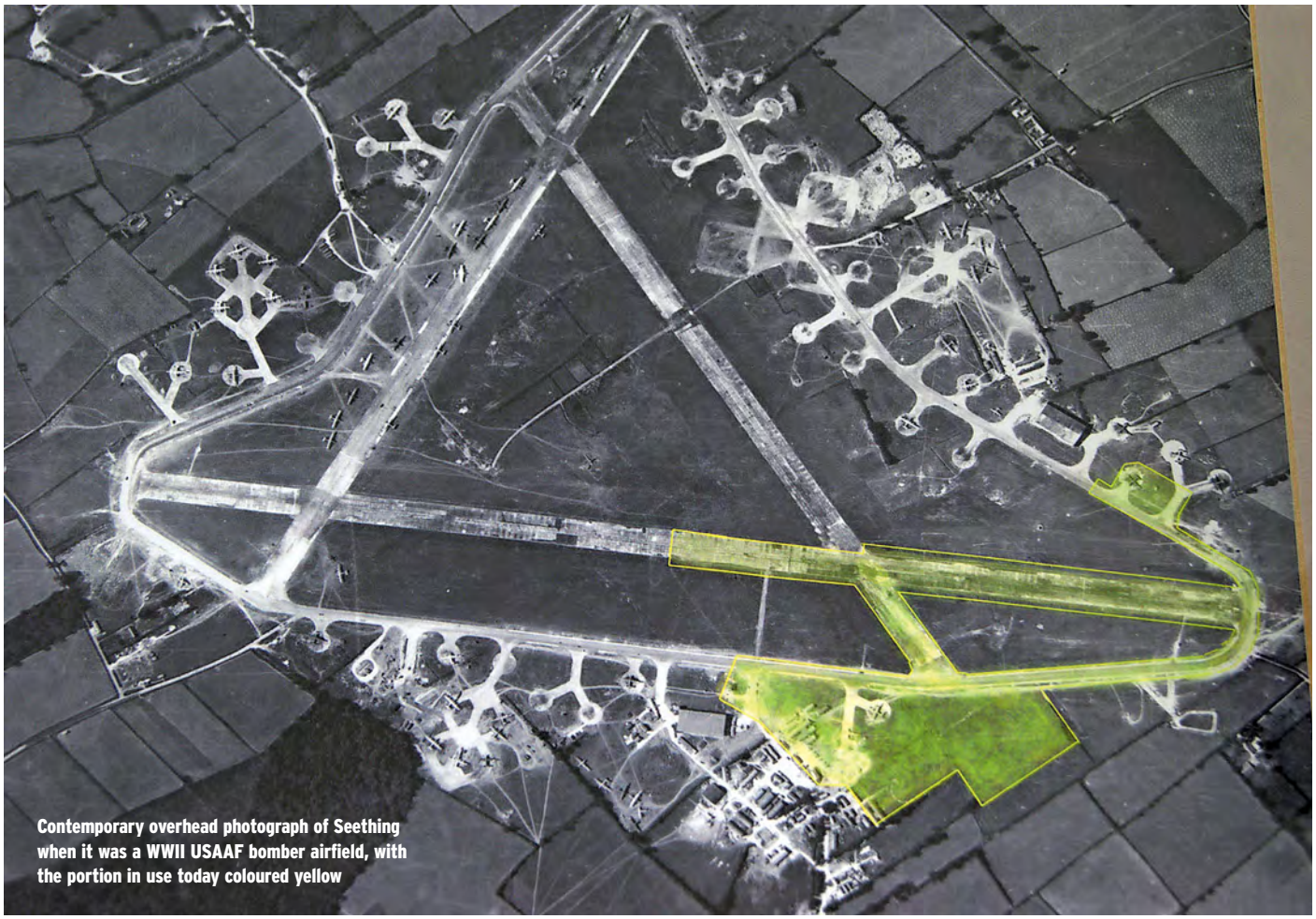
Sebastian Southgate, a Cadet in the Great Yarmouth Squadron, newly embarked on a PPL and planning to become an RAF pilot

long enough to photograph John Shaw, a club instructor and his student, Charlie Hicks, who's an IT Manager. Charlie is just starting her PPL. They've just arrived, so I don't hold them up.

Lunch is chicken pie with cabbage and carrots. Seated at my table is Peter Bryant, who is 76 and has been in the club for twenty years. Retired now, he began as a woodworker in a bus manufacturer, later moving to fibreglass construction. He's an ex-pilot, so now he's a social member as is his friend Tony Deady, 72, a retired book binder who's been in the club for ten years. The lunch, which is just four quid, is cooked and served by club members twice a week, on Wednesdays and Saturdays. Visiting pilots can get it too, providing they telephone ahead and book. It's something I would warmly recommend, as the food is traditional and there's a friendly atmosphere. My pudding, which arrives shortly afterwards, is a slice of cheesecake. (The Wednesday lunch is for over-sixties, but in practice anyone can come.) I gather 25 lunches are being served today and that's a bit down on previous Saturdays, probably because the weather's not so good today.

After lunch I sit down for a proper chat with Simon Finlay, so that he can fill me in with more details about the club and airfield.

RAF Seething was constructed in 1942 and became operational in 1943. It was built to the standard bomber base pattern for USAAF use. B-24s flew from here, bombing aircraft factories, ball-bearing plant, airfields, V-bomb launch sites and other strategic targets. The airfield ceased operation at the end of the war and most of it was ploughed under – but not all, because the present Runway 24/06 is a



Contemporary overhead photograph of Seething when it was a WWII USAAF bomber airfield, with the portion in use today coloured yellow

survivor from the wartime airfield (at that time the runway was considerably longer). Four pilots set up a flying club here in the early 1960s, which later became the Waveney Flying Group. The original WWII Control Tower has been restored (it's on the far side of the airfield, just visible in my overhead photograph) and a museum there can be visited on the first Sunday of the month in summer.

The club has just one training aircraft, a Cessna 172. Its only other aircraft, a PA-28 is used for self-fly hire by members. There are currently eight members learning to fly and a waiting list of others. At the moment, 21 aircraft are based on the airfield. Nine members have display authorisations, and one or two are keen aerobatic pilots. The seven-to-eight instructors are all volunteers. The club charges £200 a year for flying membership and flight training is just £100 an hour – no wonder there is a waiting list! The PA-28 is a little more expensive: £110 an hour. Members don't get charged for landings and neither, actually, do visitors, although there is a suggested voluntary contribution starting at £10 for a light single. As for fuel prices, "We try to keep them competitive".

Two senior club members have come to join us. John Shaw is an instructor and co-Vice Chairman and Ivan Mia, Club Secretary. I ask John what are the pros and cons of instructing at Seething. "Not getting paid is actually an advantage," he says, "it means people are instructing because they want to. The runway here is excellent, 800 metres long, flat and like everything else on the airfield, well maintained. We have the usual advantages of being in uncontrolled airspace, but we're close enough to Norwich zone to introduce students to controlled airspace and the controllers there are invariably helpful. We can also introduce students to military zones – Lakenheath and Mildenhall can both be overflown and it is quite something to be able to look down on F-15s in the circuit. There's no queue here to get on the runway, which is helpful. And the air/ground radio is less intimidating, although, like being in uncontrolled airspace, that can make things too easy. So once students have their licence and go further afield it can come as rather a shock. We have maintenance on the airfield, so that helps too."

Beautiful Jurca Tempete is based at Seething

The club ethos... from the very start has been to make flying affordable

I ask about visiting pilots. John says, "We like them to be aware of noise abatement and ideally to phone ahead before takeoff, but we're relaxed and it is perfectly okay to announce yourself on the radio and not phone ahead. I think pilots should have the freedom to decide where they're going to land only once they are in the air, don't you?"

Simon Finlay is fifty and has been in the club for fifteen years, having learned to fly here. He currently flies a Jodel D.11A. Simon, John and Ivan estimate that well over half the members are like Simon and learned to fly at Seething. I ask them to sum up what makes Seething different. It's Ivan who answers. "The time, effort and enthusiasm of members," he says, "that, plus the club ethos which from the very start has always been to make flying affordable for the man in the street."

Simon takes me out to the latest hangar to be constructed, where his Jodel lives.

Second of the two longer-established hangars, like the first, has a turntable in its centre

Club member Dan Gay, originally from Chicago, owns a Long-EZ and has a DA to display it

View of the Waveney Flying Group hangar, airfield fire tender standing by

The aircraft – and hangar too – is immaculate. He tells me that it was built by a German pilot who during WWII was an 'Ace' shooting down record numbers of aircraft on the Allied side. A co-owner flew out to the airfield in Germany where the Jodel began its life, sadly a few years too late to meet its builder.

I take photographs of various aeroplanes in the hangars – there is quite a variety – including the latest arrival, a Van's RV-7. Also of note is a Sonex being built by club member Tim Mobbs, which looks as if it might be nearing completion. We are joined by Dan Gay. As soon as he speaks, I recognise the voice I heard this morning when I rang – yes, he's the American, from Chicago, actually. Dan is 52, owns a music shop and provides music lessons, mainly on drums, guitar and piano. He came to the UK many years ago, learned to fly at Seething, recently got his Display Authorisation and tells me he's looking forward to displaying the Long-EZ he owns.

I am getting a little concerned about the flight back, as rain, low cloud and gusting winds are forecast to arrive from the south-west by early evening, so it's time to wind up my visit and get going. Before leaving, though, I must pay a visit to Fordaire Aviation and nip up to the Tower.

I knew Rex Ford when we were both based at Little Gransden, but that is maybe twenty years ago and I haven't seen him since. He's still doing now what he did then: maintaining aircraft and restoring classics – only now it's from Seething (he came here four years ago). His operation has expanded since his Gransden days and he now has four full-time and three part-time engineers in his company with seventy aircraft on its books. In the substantial workshops, covered in polythene sheet is a beautiful Percival Q.6 Petrel – unique apparently – under restoration and, from the look of it, near to completion. It's co-owned by Fordaire and Finest Hour. The Petrel first flew in 1937 and was designed as a feeder airliner with six seats and/or military communications aircraft. Construction is wood-and-fabric and power is from two de Havilland Gipsy Sixes. Cruise speed is 175mph – not bad, carrying six on 400hp.

Club member Tim Mobbs's Sonex is under construction

Visitors do need to keep an eye out for farm vehicles which can obstruct the approach

On the way to the Tower I pause briefly to photograph club member Alan Youngs driving the club's 1968 Massey-Ferguson tractor, which they use for cutting the grass. The club owns the buildings and the runway (through a holding company, Wingtask 1995), but the rest of the site is owned by farmers and is cultivated, crops growing right up to the edges of the runways. Visitors do need to keep an eye out for farm vehicles, which can obstruct the approach.

There's a group of members chatting in the control tower, including Mike Page, who is the senior air/ground radio operator. He's been a club member since 1960, which makes him the longest-serving member. He must be older than he looks.

A little group gathers at the Wot to see me safely off. We pull the aeroplane onto the grass edge next to the taxiway. After donning earplugs (they said I can depart non-radio), helmet and goggles, I give the throttle three primes, then close it, go

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Mike Page, Senior Air/Ground radio operator, is longest-serving club member (since 1960!)

round to swing the prop, and after four blades the engine catches and chuckles to itself at idle. I climb aboard, open the throttle to a more comfortable (for the engine) setting and fiddle with my straps, give a wave and set off down the narrow strip of grass between crop and hard, making pre-flight checks as I go. As I near the threshold it dawns on me that I don't need to bother with that narrow grass runway; I can take off on the hard. All I need do is turn the aeroplane without letting the tailskid drop.

I give the approach a hard look, just in case someone's arriving non-radio. No, it's clear and I saw the club Cessna a moment ago, on the ground, a student and instructor aboard, but the propeller stationary. Stick fully forwards and a burst of throttle and right rudder gets the Wot turning with its tail off the ground. With the skid no longer acting as a brake it takes full throttle and full opposite rudder to stop the rotation so that we're lined up with the runway and gathering speed. The Wot accelerates quickly, lifts off and climbs away. Maybe the departure committee has gone back into the clubhouse, but in case anyone's still watching I give full bank rapidly (well, fairly rapidly) in each direction for a goodbye wave.

The flight back turns out to be far from easy, because the air has turned milky and alternates between murk – when the sun's in – and total opacity whenever the sun comes out. My required route is a delicate

Today's Tower is sited above the fire and rescue station at one end of the Waveney hangar

one, threading my way between Stansted's and Luton's zones without much room for error. So, the GPS stays on to guide me all the way to my home strip.

It was getting rather late in the season to fly to Seething, but I'm glad I went. I warmly recommend a Saturday lunch there. You won't be disappointed. The airfield is amazing, truly a marvel of what can be achieved by friendly, democratic cooperation. It certainly represents my kind of flying. ■

Safety Matters

Safety Matters and **Safety Briefs** are based on the AAIB Bulletin UK Airprox Board reports, with additional material from the US National Transportation Safety Board

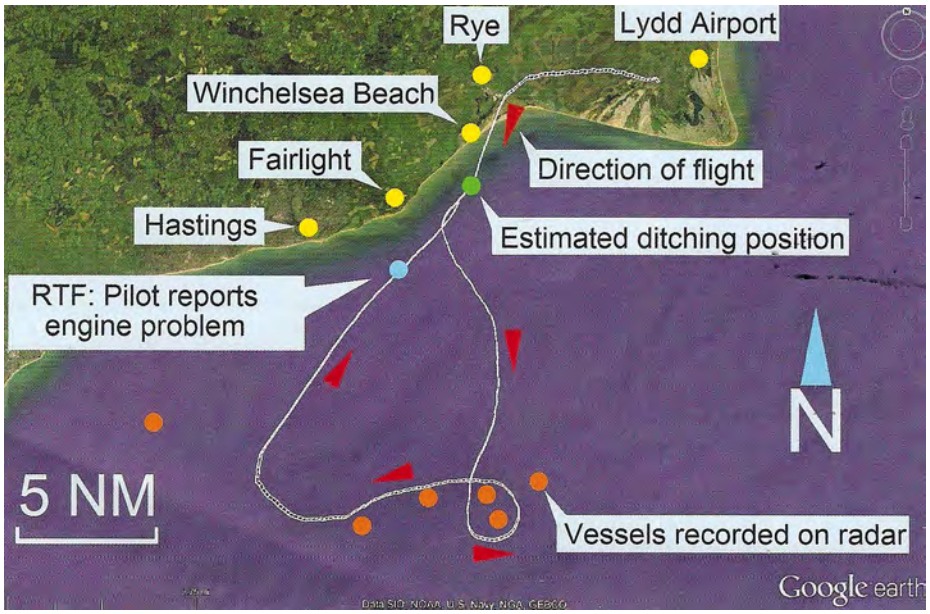
Lost at sea (1)

Aircraft Type: Piper Warrior II
Date & Time: 6 August 2016 at 1600
Commander's Flying Experience: PPL, 98 hours, 48 on type
Last 90 days: 5 hours
Last 28 days: 1 hour

The aircraft, owned by a Lydd Airport-based syndicate, was to make two flights with different pilots. The first was uneventful and its pilot had a brief discussion with the second pilot about the weather and local air traffic information, noting that the aircraft would need to be refuelled before the next flight. The second pilot said that he didn't have a firm plan about where he was planning to fly, he was just going for a solo local flight.

Having refuelled the Warrior he took off at 1529, climbing to 2,200ft. At 1558:47 the pilot transmitted that he had a problem, stating "Golf Echo Romeo, Lydd, Lydd Approach, Golf Echo Romeo, I've got a, eh, a engine problem here, eh, temperatures sky high and oil pressure is falling." He reported that he was about 12nm from the airport and approximately 4.6nm ESE of Hastings. The nearest shoreline was 2.1nm away, between Hastings and Fairlight – within the gliding range of the aircraft, which was at about 2,200ft amsl.

At 1559:26 the aircraft started to descend at an average rate of 1,300fpm. Twenty-seven seconds later the pilot transmitted, "Lydd Approach, I'm going to need assistance. Eh, engine now beginning to fail, I'm losing altitude," adding that he was unable to restart the engine, which



The Warrior's flight path, as established from radar returns

was "popping". He was over the sea, 10nm from Lydd and 3.5nm south of Winchelsea, 1,600ft amsl and 1.5nm from the nearest shoreline – still within gliding range.

The Warrior maintained a track that was almost parallel to the shoreline whilst continuing to descend until, at 1600:34, its final radar return showed it at an altitude of 600ft amsl, estimated airspeed about 100kt, and 1.42nm from a beach that was now beyond gliding range. Fifteen seconds later the pilot made his last radio transmission, saying that he was ditching.

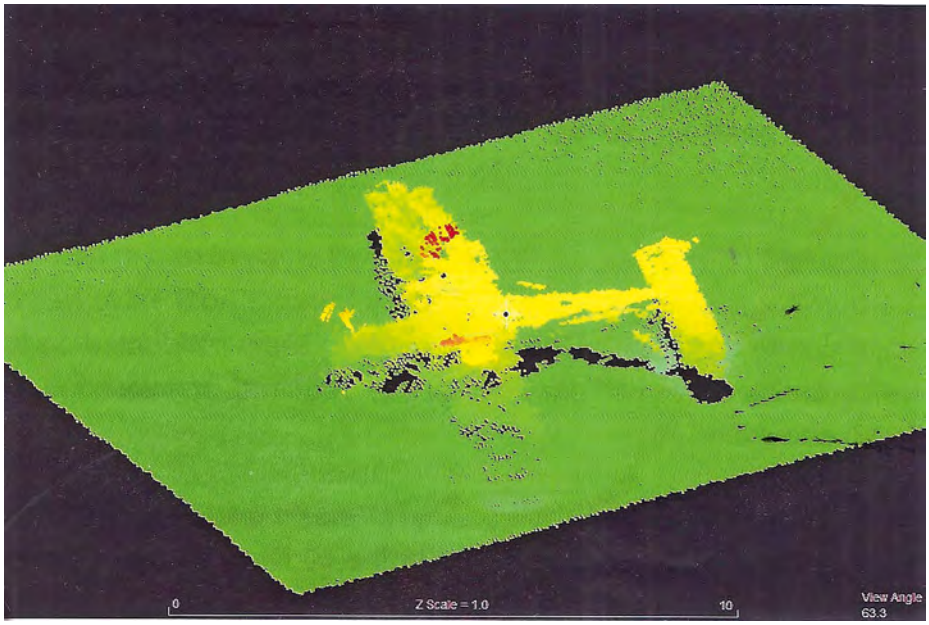
A witness on Winchelsea Beach, who was a PPL with 25 years' flying experience, described the weather conditions as good for flying, but with a strong south-westerly wind. Around 1600 he saw an aircraft at what he estimated was 1,200ft. He could hear no engine noise, and described seeing it descending on a straight course with no change in its heading until it went into the sea, downwind in a flat configuration. Other witnesses reported seeing what most of them initially believed was a boat skipping across the water, until it suddenly flipped over and they could see that it was actually an aircraft. The Warrior floated for around thirty seconds before rolling over and sinking.

Based on the aircraft's glidepath, witness reports, and an oil slick seen on the surface of the sea by the crew of an SAR helicopter, the aircraft struck the water about 1.2nm from the shore. The crew of an RNLI lifeboat placed a buoy at the location of the oil slick, and four days later a side-scan sonar equipped survey vessel located the Warrior on the seabed at a depth of between 5-9m, apparently intact, and inverted. Three days later a dive team confirmed that the body of the pilot was in the cockpit, and the aircraft was subsequently recovered. Initial examination revealed that its flaps had been deployed to their first position (10°), the pilot's seat belt was unfastened, the upper cockpit door latch was in the open position and the ➔

BRIEFS

PROPELLER PROBLEMS

The Grob G115E Tutor's pilot reported that during a formation takeoff from RAF Wittering, at 400ft agl a loud thud was heard, followed by severe vibration. He turned downwind immediately, made a PAN call, and as soon as sufficient runway was available made a glide approach and successful landing. Examination of the aircraft's propeller revealed that its anti-erosion sheath had separated from one of the blades. As a precaution the operator removed from service all propellers overhauled by its UK subcontractor, as this one had been. Specialist examination of the failure by the propeller's manufacturer indicated that a combination of three defects had led to the loss of the anti-erosion sheath: insufficient adhesive between the blade and the sheath, the layers of glass fibre on the inner portion of the sheath had been sanded excessively, and the sheath was not cleaned totally before refitting to the blade. Examination of the remaining two blades of this propeller and all three blades of another propeller overhauled by the same UK subcontractor showed them to be free from these defects.



Side-scan sonar image of the Warrior lying inverted on the seabed

lower door latch locked. The pilot had not been wearing any form of flotation aid. Both fuel tanks were intact and a large quantity of fuel was drained from them, examination and testing of which confirmed that it had not been contaminated prior to the accident, and the presence of fuel in the carburettor indicated that fuel was available to allow engine operation.

The AAIB report concludes: 'On the weekend of the accident, the southern part of the UK was subject to a moist south-westerly airflow. The temperature and dew point of this air mass was such that aircraft flying around 2,000ft were operating in an area where severe carburettor icing could occur at any power... Other events, both reported and anecdotal, from aircraft operating in the same weather system confirmed that carburettor icing might have been prevalent. Given the evidence from the examination of the aircraft, the pilot's report of "sky high oil temperature" was probably due to the oil temperature gauge reading (erroneously) in excess of 245ºF as a result of the effect of a chafed wire. In this situation, some pilots can become focussed on the abnormal indication to the detriment of other checks and actions.

'Given the atmospheric conditions, if carburettor heat was not routinely applied, ice would have built up in the barrel of the carburettor and the engine would begin to lose power and run roughly until eventually it would stop. It would not be possible to restart the engine until the ice had melted which could take several minutes. As the oil pump is driven by the engine's crankshaft, any reduction in engine rpm would produce a corresponding reduction in engine oil pressure. The combination of high oil temperature indication, a rough running engine and reducing oil pressure are usually symptomatic of a failure of the engine lubrication system. Therefore, it is not unreasonable to assume that the pilot, when confronted by this situation believed that the aircraft's engine was about to fail due to lack of lubrication.

'The aircraft's position, when the pilot indicated he was unable to maintain altitude, was within glide range of land... [but] the aircraft was flown at an airspeed estimated to be at least 20kt faster than the published best glide speed, which would have adversely affected its time in the air. The pilot did not attempt to turn the aircraft into the wind, which would have reduced his groundspeed by around 34kt, nor did he select full flap to reduce the airspeed at which the aircraft ditched. The investigation considered that this was probably because of the pilot's relative inexperience, and becoming fixated on trying to return to the airfield. The aircraft continued downwind and consequently ditched with a high groundspeed whose impact forces resulted in the pilot sustaining severe multiple injuries. The investigation was unable to determine why the pilot's seatbelt was undone, but considered it probable that the door was unlatched by the pilot prior to the water impact in accordance with his [ditching] training.'

Lost at sea (2)

Aircraft Type: Ikarus C42 FB80
Date & Time: 9 June 2016 precise time unknown
Commander's Flying Experience: NPPL(A), total hours and hours on type not known
Last 90/28 days: Not known
With two persons on board the aircraft took off from City of Derry Airport at 1045 for a flight to Kirkbride Aerodrome in Cumbria. Weather at the time was wind from 030/4kt with direction varying between 350-070; 7,000m visibility with fog in the vicinity of the aerodrome; few clouds at 400ft aal, scattered cloud at 800ft aal and broken cloud at 2,300ft aal.

A Skyranger had taken off one minute earlier for the same destination but, although its pilot had planned the route with the occupants of the Ikarus, intending for the two aircraft to fly around the coast of Northern Ireland in a clockwise direction towards Larne before turning east towards Stranraer and then Kirkbride, there was no intention to fly in formation. The Ikarus routed towards the Coleraine VRP 18nm ENE of City of Derry Airport. At 1058, just before leaving the ATC frequency, its pilot reported his altitude at 1,200ft, routeing towards Port Rush, approximately 4nm north of Coleraine, and descending to maintain VMC. At 1103 the pilot of a commercial flight in contact with Scottish ATC reported that an aircraft with the Ikarus's callsign was trying to make

BRIEFS

TWITCHY TECNAM'S LEFT SWING

The Tecnam Sierra's pilot applied full power to take off from Haverfordwest's Rwy 03. Wind was northerly at 8-9kt. At 45kt he began to raise the nose, but it rose more abruptly than expected and he released back pressure on the control column. The nose and left wing then dropped and the aircraft, which had briefly become airborne, struck the ground and came to rest in long grass adjacent to the runway. The pilot considered that gusty wind conditions may have contributed to the loss of control. The AAIB commented: 'Although it was not possible to determine whether it was a contributing factor to this accident, [we are] aware of a number of runway excursions to the left featuring this class of aircraft which have relatively high power-to-weight ratios. The tendency to swing to the left at high power is more pronounced at low airspeeds and an appropriate application of right rudder is required to control it.'

BRIEFS

TAILWIND TAKEOFF WOE

The Zenair Zodiac's pilot believed that the downslope on the 600m grass runway at Headon Microlight Strip near Nottingham would compensate for a possible 3kt tailwind. The temperature was 26ºC and the aircraft was close to its maximum weight, but the pilot knew the airstrip well and did not calculate the required takeoff run. He expected to be airborne before reaching a prominent dip in the grass surface some two-thirds of the way along the strip, but the takeoff roll was longer than expected and, although the pilot rotated just before the dip, in retrospect he believed that he probably rotated at a slightly lower airspeed than normal. The controls felt 'heavy' and the left wing dropped. The pilot was unable to regain control and the aircraft veered into a hedge and was severely damaged. Neither occupant was injured. The pilot believes he was caught out by the combined effects of a tailwind and the low atmospheric density and in future intends to calculate his aircraft's takeoff performance with appropriate allowance for the ambient conditions.

contact with Scottish ATC and he could still hear its pilot trying to make contact, but the ATCO replied they could not hear the transmissions.

The Skyranger's pilot reported that the last time he recalled seeing the Ikarus was at approximately 1128 in the vicinity of Cushendun, on the coast some 32nm north of Belfast, but he heard and saw nothing to indicate that there was a problem. As he routed along the coast south of Cushendun visibility was approximately 3-5km in haze with a poorly defined horizon, and there was fog over the sea. He climbed above the haze, which extended to about 2,000ft amsl, turned east towards Stranraer and called Scottish ATC at 1156. The Ikarus was reported missing at 1900 when the pilot of the Skyranger telephoned City of Derry Airport to enquire whether it had returned.

Sections of the Skyranger's rear fuselage were spotted the following day floating in the sea south-east of Cushendun. Examination of images of the recovered pieces of the aircraft confirmed that it had struck the sea with significant force. However, due to the limited amount of material recovered, and the lack of other substantive evidence relating to the accident, the AAIB was unable to determine the cause of the loss of the aircraft.

Too close an encounter

Aircraft Types: 1 Robinson R44 II
2 Spitfire Mk IXT
Date & Time: 15 June 2016 at 1151
Commanders' Flying Experience:
1 PPL, 208 hours, 131 on type
Last 90 days: 2 hours
Last 28 days: 2 hours
2 ATPL, 20,000 hours, 101 on type
Last 90 days: 34 hours
Last 28 days: 16 hours

The two-seat Spitfire's pilot, who was carrying out a series of pleasure flights from Headcorn, joined the circuit, reported downwind and then made a continuous left turn on to final approach for Rwy 28. He reported "final to land" in the turn, during which he saw a helicopter hovering to the south of the runway, near to the parking area. He maintained visual contact with it until rolling wings level at about 100ft agl on final approach. With the surface wind from the south-west, the nose of the aircraft was offset to the left as the pilot lined up with the runway, obscuring his view of the parking apron. After touching down and rolling out for about 200m, the Spitfire pilot saw a helicopter pass left to right directly above his aircraft. He was not aware of any contact, but on inspection after shutdown discovered minor damage to one propeller blade.

The helicopter pilot and his passenger, who was also a qualified pilot, were departing to the Isle of Wight. From the apron area to the south of Rwy 28, the helicopter lifted and hover-taxied towards the helicopter holding point on the north side of the airfield, near the Rwy 03 threshold, which is used prior to departure from Rwy 28. The pilot looked for other traffic and transmitted "crossing active" as he continued towards the Rwy 03 threshold. Meanwhile, as the helicopter lifted into the hover, the passenger had turned his attention to his iPad, on which he was plotting the route. As they crossed the runway both pilot and passenger heard a noise and the passenger felt a slight bump. They saw the Spitfire to their left and decided to return to the apron, where they saw damage to the empennage and tail rotor guard.

A tractor was mowing the grass to the south of Rwy 28. Its driver was wearing headphones and listening out for aircraft movements on the airband radio. He heard normal "downwind" and "finals" radio calls from the Spitfire, and also the helicopter pilot advising that he was departing to the Isle of Wight. He saw the R44 hover-taxying away from the apron, north towards the runway, at an estimated speed of 10kt, and heard the pilot call "crossing active" but at a lower volume than on the previous transmissions. He realised that the helicopter was not going to stop and watched it cross the runway as the Spitfire was completing its landing roll. He thought an accident was about to occur but he did not see evidence of any contact between the two aircraft.

A second witness, who had just landed on Rwy 28 and was taxying back to the parking area, saw the Spitfire on final and stopped to watch it land. He noticed a helicopter hover-taxying north towards the runway, assumed it would hold on the south side, and turned his attention back to the Spitfire. He watched the landing and ground roll and was surprised to see the Spitfire pass to the rear of the R44, meaning that the helicopter was above or across the runway.

The helicopter pilot reported that he had stopped to look for traffic and made a radio call before crossing to the north side. He did not hear any other traffic on frequency. As he crossed Rwy 28, he heard a "whooshing" noise but did not feel any contact. He concluded that he had not seen the other aircraft because he was looking for aircraft on approach and not on the ground.

When Spitfire operations were in progress at Headcorn, an additional signboard was placed at the light aircraft holding area for Rwy 28, to caution pilots. A similar sign was not available for helicopter operations, because a signboard where the runway is crossed would create an obstruction.

The AAIB concludes: 'The Spitfire pilot flew a curved approach to maintain a view of the runway. However, once he was lined up with the runway, his view ahead and to the left was obscured by the nose of the aircraft. This approach pattern may have been unfamiliar to the helicopter pilot and, as a result, when he looked out before crossing the runway he did not see the Spitfire. The helicopter was hover-taxying in gusty tailwind conditions and, although the pilot reported that he had stopped to look, evidence from the other witnesses suggested that the helicopter continued moving forwards. The helicopter passenger, who would also have had an opportunity to see the Spitfire, was directing his attention elsewhere.'

After the accident Headcorn's Aerodrome Safety Manager issued a notice to the helicopter operator based at the airfield requiring helicopters to hold short of the active runway and request clearance to cross the runway. The A/G radio operator will then inform the helicopter pilot of any known traffic and the pilot, having checked it is safe to do so, may then cross. ■

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How air-brained are you?

By *James Allan*

1 **A British pilot holding a UK PPL (or NPPL) wants to take a friend, who has no pilot qualification, as passenger on a local daylight flight. The pilot's only recent flight was exactly twelve weeks ago when he flew as P1 for twenty minutes and made one full-stop landing. Is he entitled to make the proposed flight?**

a yes, provided he pays at least 50% of the direct costs of the flight
b yes, but only if he holds an IMC rating
c no, he must first obtain a proficiency check from an instructor
d no, he must make at least three takeoffs and three landings, either solo or accompanied by an instructor, before flying with a passenger
e no, he must make at least two takeoffs and two landings, either solo or accompanied by an instructor, before flying with a passenger

2 **Which type of cloud generally precedes a warm front?**

a nimbostratus
b cirrocumulus
c cumulus
d altostratus

3 **Which transponder code can a pilot use to indicate a complete radio failure?**

a 7700 **b** 7600
c 7500 **d** 4321

4 **You are making a turn to the left and the turn coordinator's needle is pointing left while the ball is positioned to the right of centre. What does this tell you the aircraft is doing?**

a it is slipping to the left
b it is skidding to the right
c it is in a correctly balanced left turn
d its angle of bank is too steep

5 **Even if they haven't experienced flying in it, most pilots have heard of the Mistral, a northerly wind that can blow at gale force down the Rhône valley in France. Where would you be if you encountered these other local winds?**

a Bora
b Levanter
c Scirocco (aka Sirocco)
d Southerly Buster

6 **The language of aviation is infested with abbreviations and acronyms. Can you decode these?**

a GNSS **b** VVI **c** TMZ
d PICUS **e** EASA **f** UAV
g EFIS **h** WTC

7 **The names of the following aircraft may remind you of the surnames of some British politicians, past and present. Which ones?**

a Lycoming-powered Robin DR400/140B four-seat light aircraft
b Two-seat Light Sport Aircraft built by Apollo in Hungary
c American homebuilt aircraft known as the CX4 and CX5
d British WWII carrier-borne twin-engine bomber/target-tug (photo above)

8 **Which of the following factors affect(s) the performance of a normally-aspirated piston aero engine?**

a humidity of the atmosphere
b barometric pressure
c all-up weight of the aircraft
d ambient air temperature

9 **The difference between True North and compass north is which of these?**

a compass error
b deviation
c variation
d the sum of deviation and variation

10 **After cruising at 2,500 feet on the regional QNH you wish to climb to FL65. When re-setting the altimeter sub-scale you make a mistake and select 1023.2hPa instead of 1013.2hPa. How will this affect your flight?**

a you will be flying 300 feet above the desired FL
b you will be flying 300 feet below the desired FL
c you will be flying at FL55
d you will be flying at FL75

Answers

1 e The recency requirement before flying with a non-pilot passenger requires a PPL(A)/NPPL holder to have made three takeoffs and landings within the preceding 90 days. The flight 12 weeks (84 days) earlier qualifies as one of these

2 a

3 b

4 b

5 a Adriatic and the Balkans
b Southern Spain and Gibraltar
c Mediterranean and southern Italy
d South-eastern Australia

6 a Global Navigation Satellite System (e.g. GPS, Galileo, GLONASS)
b Vertical Velocity Indicator (same instrument as VSI)
c Transponder Mandatory Zone
d Pilot in Command Under Supervision
e European Aviation Safety Agency
f Unmanned Air Vehicle
g Electronic Flight Instrument System
h Wake Turbulence Category

7 a John Major (Robin DR400/140B Major)
b Liam Fox (Apollo Fox; derivative of Denney Kitfox)
c Margaret Thatcher (Plans for the CX4 and CX5 are supplied by Thatcher Aircraft Inc.)
d Nicola Sturgeon (S.38 Sturgeon, built by Short Bros.)

8 a, b & d

9 d Always remembering that one might be positive and the other negative

March issue: **10 c**

February's winner was **Adam Wilson** of **Newcastle upon Tyne**

Calendar

To see the monthly calendar online, visit *www.pilotweb.aero*

Remember to check with the organiser before setting out – events may be changed at short notice

UK & IRELAND

March

4 Indoor Aeroboot/Aerojumble Table Top Sale Newark Air Museum, Newark, Notts. Tel: 01636 707170. Email: *enquire@newarkairmuseum.org*

5 Vintage Sunday Old Sarum, Wilts. *oldsarumairfield.co.uk*

6 *B-17 and B-24* London Society of Air-Britain illustrated talk by Graeme Douglas comparing the Flying Fortress and Liberator in USAAC, USAAF and US Navy service. Function Room, The Barley Mow, 104 Horseferry Road, Westminster, London. Starts 1930. Email: *james.dale@tesco.net*

6 GASCo Safety Evening Coventry Flying School, Coventry Airport, Warwicks. Tel: 07885 249847. Email: *benboulthsa@aol.com*

10 Vintage Aircraft Club Evening of Aviation Poetry and Prose from WWI to the Present Day Sherburn Aero Club, Sherburn-in-Elmet, Yorks. *vintageaircraftclub.org.uk*

11 *LXNav Instruments and Their Development* Lasham Gliding Society talk by Shaun Lapworth. Lasham, Hants. Tel: 01256 384900.

15 GASCo Safety Evening LAA Suffolk Coastal Strut, The Clubhouse, Crowfield Airfield, Coddenham Green, Suffolk. Tel: 07790 925142. Email: *events@suffolkcoastalstrut.org.uk*

16 GASCo Safety Evening Cambridge Aero Club, Gate D, The Airport, Cambridge. Tel: 01223 373717. Email: *reception@cambridgeaeroclub.com*

18-19 75th Members Meeting Goodwood Aerodrome/Motor Circuit, West Sussex. *goodwood.co.uk*

24-30 April *Sir Alan Cobham's Flying Circus: A Life of a Pioneering Aviator* Exhibition at the RAF Museum Cosford, Shropshire. Tel: 01902 376200. *rafmuseum.org*

25 Vintage Aircraft Club Visit to the Museum of Berkshire Aviation Woodley Airfield, Reading, Berks. *vintageaircraftclub.org.uk*

30 GASCO Safety Evening Penrith RUFC, Winters Park, Penrith. Tel: 07949 216341. Email: *edensoaring.co.uk*

31 GASCo Safety Evening Portsmouth Naval Gliding Centre, Gosport Road, Fareham, Hants. Pre-registration essential. Tel: 02392 333993. Email: *info@flyhac.co.uk*

April

1 Vintage Aircraft Club Daffodil Fly-In Fenland Airfield, Lincs. *vintageaircraftclub.org.uk*

1 GASCo Safety Evening Wolds Gliding Club, The Airfield, Pocklington, East Yorks. Tel: 01759 303579. Email: *tonyk152@hotmail.com*

1-4 British Aerobatic Association Judging Seminar White Waltham, Berks. *aerobatics.org.uk*

2 Vintage Sunday Old Sarum, Wilts. *oldsarumairfield.co.uk*

2 Shropshire Scale Model Show RAF Museum Cosford, Shropshire. Tel: 01902 376200. *rafmuseum.org*

4 GASCo Safety Evening Stratford-on-Avon Gliding Club, Snitterfield Airfield, Warwickshire. Tel: 01789 731095. Email: *chairman@stratfordgliding.co.uk*

4 The Honourable Company of Air Pilots Senior Flying Instructors' Forum Central Flying School, Royal Air Force College Cranwell, Lincs. Strictly pre-booking via email: *phil@cotswoldaeroclub.com*

6 GASCo Safety Evening Sheffield Aero Club, Netherthorpe Airfield, Worksop. Tel: 07850 119453. Email: *info@sheffieldaeroclub.net*

8 Ladies' Fly-In Old Sarum, Wilts. *oldsarumairfield.co.uk*

8 Beagle Pup 50th Birthday Celebration Turweston, Northants. *beaglepupandbulldogclub.co.uk*

9 Jodel Club Fly-In Popham, Hants. *popham-airfield.co.uk*

10 *The Percival Proctor* London Society of Air-Britain talk by Mike Biddulph on his life growing up as a son of a Proctor owner and his current restoration of these now rare aircraft at Great Oakley. Function Room, The Barley Mow, 104 Horseferry Road, Westminster, London. Starts 1930. Email: *james.dale@tesco.net*

12 GASCo Safety Evening Hawarden, Cheshire. Details TBA. Tel: 07974 316123. Email: *social@prba.org.uk*

15 GASCo Safety Presentation Old Stone Trough Public House, Colne Road, Kelbrook, Barnoldswick, Lancs. Starts 1400. Tel: 01759 303579. Email: *tonyk152@hotmail.com*

21-23 British Aerobatic Association Dan Smith Memorial Trophy Competition Dunstable, Bedfordshire. *aerobatics.org.uk*

22 Feet Off Ground Flying Day for Youngsters from Little Harbour Children's Hospice Bodmin, Cornwall. Visitors welcome. Tels: 01752 406660 or 07805 805679. Email: *pete@aeronca.co.uk bodminairfield.co.uk*

RAFM Cosford 24 March - 30 April

22 Vintage Piper Aircraft Club Pre-Season Meeting Sleap, Shropshire. *vintagepiper.com*

23 Light Aircraft Association Wessex Strut 40th Anniversary Fly-In Henstridge, Somerset. *wessexstrut.org.uk*

23 LGW 2017 28th Gatwick International Aircraft Enthusiasts' Fair K2 Crawley, Pease Pottage Hill, West Sussex. *gatwickaviationsociety.org.uk*

23 Sunday Scramble and Drive-It Day Bicester, Oxon. *bicesterheritage.co.uk/events/*

23-24 Royal Aero Club Air Racing Weekend Leicester Airport. *RoyalAeroClubRRRA.co.uk*

25 GASCo Safety Evening Ravenair Business Aviation Centre, Viscount Drive, Liverpool-John Lennon Airport. Tel: 0151 728 4734. Email: *neilbishop@ravenair.co.uk* Registration required at *goo.gl/eWXaPd*

29 Vintage Aircraft Club Spring Fly-In Turweston, Northants. *vintageaircraftclub.org.uk*

29-30 Microlight Trade Fair Popham, Hants. *popham-airfield.co.uk*

29-30 Wings and Wheels Featuring the Radial and Trainer Fly-In Wolverhampton-Halfpenny Green. Free landings for vintage aircraft. *wolverhamptonairport.co.uk*

World Formation Aerobatics Championships, China 29 April-1 May

29-1 May Large Model Aircraft Airshow Lincolnshire Aviation Heritage Centre, East Kirkby, Lincs. *lincsaviation.co.uk*

30 Light Aircraft Association Devon Strut Fly-in Dunkeswell, Devon. *devonstrut.co.uk/events*

30 Wings & Wheels 2017 Old Buckenham, Norfolk. *oldbuck.com*

May

1 Aero/Autojumble & Classic Vehicle Rally and Fly-In Popham, Hants. *popham-airfield.co.uk*

3 fly2help Gala Dinner 2017 RAF Club, Piccadilly, London. Tel: 01285 770821.

6 Royal Institute of Navigation TopNav Competition Bodmin, Cornwall; Goodwood, West Sussex; White Waltham, Berks; and Peterborough-Conington, Cambs. Reserve date 13th if weathered off. *rin.org.uk/Events/4784/TopNav-2017*

6-7 British Aerobatic Association John McClean, Newbold and Icicle Trophies Competitions Breighton, Yorkshire. *aerobatics.org.uk*

7 Van's RV Fly-In Popham, Hampshire. *popham-airfield.co.uk*

7 Heathrow Aircraft Enthusiasts' Fair Kempton Park Racecourse, Staines Road East, Sunbury-on-Thames, Middx. *aircraftenthusiastfair.co.uk*

7 The Shuttleworth Collection Season Premiere Air Show Old Warden, Beds. PPR essential on tel: 01767 627927. *shuttleworth.org*

7 Aerojumble and Fly-In Breighton, North Yorks. *realaero.com/events.htm*

8 *Hangar 11* London Society of Air-Britain talk by Steve Atkin on Hangar 11 at North Weald which houses a Hurricane, Spitfire, Mustang and Kittyhawk. Function Room, The Barley Mow, 104 Horseferry Road, Westminster, London. Starts 1930. Email: *james.dale@tesco.net*

12-14 DH Moth Club 2017 Moth Flying Forum RAF Henlow *dhmothclub.co.uk*

13 Aerobilia '17 Aerojumble and Aviation Collectors Fair Boscombe Down Aviation Museum, Old Sarum, Wilts. Tel: 01980 863062. Email: *hugh.sillett48@btinternet.com* *boscombedownaviationcollection.co.uk*

13 Classic Years Aviation Photography Day Imperial War Museum, Duxford, Cambs. *iwm.org.uk/events*

13 Vintage Piper Aircraft Club Northern Meeting Breighton, North Yorks. *vintagepiper.com*

13 Photography Event Lincolnshire Aviation Heritage Centre, East Kirkby, Lincs. *lincsaviation.co.uk*

13-14 Summer Fly-In Manchester-Barton Airport. PPR at *cityairportandheliport.com* or tel: 0161 789 1362.

13-14 Wing Walking Displays Breighton, North Yorks. *realaero.com/events.htm*

14 Pooley's Air Day Compton Abbas, Wilts. Tel: 01747 811767. *comptonabbasairfield.co.uk*

14 Abingdon Air & Country Show Abingdon Airfield (Dalton Barracks), Oxfordshire. *abingdonfayre.com*

19-20 Open Cockpits Evenings RAF Museum Cosford, Shropshire. Tel: 01902 376200. *rafmuseum.org*

20 The Shuttleworth Collection Classic Evening Airshow Old Warden, Beds. PPR essential on tel: 01767 627927. *shuttleworth.org*

20-21 Hastings & Shackleton 40th Anniversary Weekend Newark Air Museum, Newark, Notts. Tel: 01636 707170. Email: *enquire@newarkairmuseum.org*

20-21 Spring Flying Meeting North Coates, Grimsby, Lincs. Tel: 01472 388850. *northcoatesflyingclub.co.uk*

21 Light Aircraft Association & Homebuilt Fly-In Old Buckenham, Norfolk. *oldbuck.com*

22 Light Aircraft Association Andover Strut Fly-In Popham, Hants. *popham-airfield.co.uk*

27 Ladies' Day Fly-In & 1940s Hangar Dance Bodmin, Cornwall. Tels: 01752 406660 or 07805 805679. Email: *pete@aeronca.co.uk* *bodminairfield.com*

27 British Aerobatic Association Open Club Event Little Gransden, Cambs. *aerobatics.org.uk*

27 Skylive Airshow Durham-Tees Valley Airport, Co Durham. *skyliveevents.co.uk*

27-28 Duxford Air Festival Imperial War Museum, Duxford, Cambs. *iwm.org.uk/events*

27-29 Lanc, Tank and Military Machines Lincolnshire Aviation Heritage Centre, East Kirkby, Lincs. *lincsaviation.co.uk*

27-2 June Vintage Glider Club UK National Rally Cotswold Gliding Club, Aston Down. Tel: 07901 765855. Email: *robinb@ruffnready.co.uk* *cotswoldgliding.co.uk*

OVERSEAS

March

6-9 Helicopter Association International HeliExpo 2017 Dallas, Texas, USA. *heliexpo.rotor.org*

10-12 Valiant Air Command Tico Warbird Show Space Coast Regional Airport, Titusville, Florida, USA. *valiantaircommand.com*

11 Navy Air Facility El Centro Air Show El Centro, California, USA. *navylifesw.com/elcentroairshow/*

19 Bronco Fan Day Kortrijk-Wevelgem Airport, Wevelgem, Belgium *broncodemoteam.com*

April

1-2 Melbourne Air & Space Show Melbourne International Airport, Florida, USA. *airandspaceshow.com*

4-9 Sun 'n Fun 2017 International Fly-In and Expo Lakeland, Florida, USA. *sun-n-fun.org*

8 Valley View Air Display Valley View Airfield, Geraldton, W Australia. *kelmac@macsland.net*

10-20 Rotorcraft Asia Show Changi Exhibition Centre, Singapore. *rotorcraft-asia.com*

11-13 ABACE Asian Business Aviation Conference & Exhibition Shanghai, China. *abace.aero/2017*

14-16 Yealands Classic Fighters Air Show Omaka, New Zealand. *classicfighters.co.nz*

15-16 Red Bull Air Race San Diego, California, USA. *redbullairrace.com*

29-1 May First World Formation Aerobatics Championships Zhengzhou, China. *wfac.eu*

26-29 AERO Friedrichshafen 2017 Messe Friedrichshafen, Germany. *aero-friedrichshafen.com*

May

4-5 Flight Safety Foundation 62nd Annual Business Aviation Safety Summit Sheraton Grand Hotel, Chandler, Arizona, USA. *flightsafety.org*

6-7 Planes of Fame Airshow Chino Airport, California, USA. *planesoffame.org*

22-24 EBACE 2017 17th Annual European Business Aviation Convention & Exhibition Palexpo Centre, Geneva, Switzerland. *ebace.aero*

25-27 HeliRussia International Helicopter Industry Exhibition Crocus Expo, Moscow, Russia. *helirussia.ru*

25-28 BullChipMeet 2017 (SAL Bulldogs and DHC Chipmunks) Abbeville, France. *bullchipmeet.eu*

27-28 Stampe and Ercoupe Fly-In Antwerp-Deurne Airport, Belgium. *stampe.be* *airtattoo.com/airshow*

Classic Fighters, NZ 14 - 16 April

We aim to make our monthly Calendar listings as complete and up-to-date as possible, and would welcome news of your event. If you are organising an air display, fly-in, one-type gathering, rally, air race, aerobatic competition, breakfast patrol, any aviation-orientated event to which visitors are welcome, please let us know. We need the date(s), event name, venue, contact phone number, email address, website, and details of any restrictions on visitors, e.g. prior permission (PPR) or advance registration required, no non-radio, visitor numbers limited. And please do remember to notify us if your event is changed or cancelled. There is no charge for entry in the Pilot Calendar. Email details to: *PilotCalendar@archant.co.uk*

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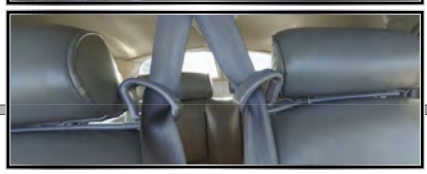

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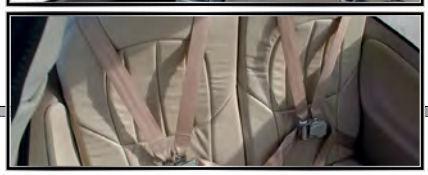

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PIPER PA28-181 - CHEROKEE ARCHER III - 2001

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This excellent machine has fantastic Garmin avionics with Stec 55 Autopilot and Alt pre-select.
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FALCO F8L – 1959

TT 1735 Eng 1735 Prop 90.
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TT 1330 Eng 80 Prop 110.
A fine illustration of this fast, good looking tourer.
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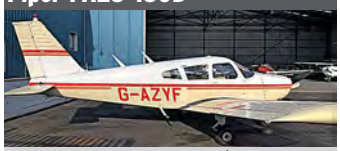

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Getting in a flap

Understanding *why* you are shown or asked to do something in a particular way could just save your life

By *Steve Pemberton*

The September 2016 edition of *Pilot* reported a student's tragic stall/spin accident. It brought back memories of an incident during my own flight training. I had always wanted to learn to fly and towards the end of my RAF posting in Cyprus, in 1993 to be precise, the opportunity finally arose. A flying club had been established at RAF Akrotiri which operated two Cessna 150s. My wife kindly bought me a trial lesson which I eagerly accepted while saying that to take up flying would be "financially irresponsible"!

My very first experience of a club Cessna 150 was with an instructor called Kate. She showed me the walkround and the start. Having talked to ATC, she taxied to the runway and then instructed me to take off! I explained that I had never flown before but she insisted that, with her guidance, I could do this. With appropriate prompts and control inputs from her, we spent a very enjoyable hour and ten minutes above Limassol Bay. Returning to the huge RAF runway, I flew the approach whilst she wisely did the actual landing. Inevitably I was hooked!

Returning to the club, I immediately introduced myself to Chris, the CFI, and signed up for lessons. Chris had a wealth of experience including RAF service and later as an instructor in the Gulf. I found that he was to be trusted without question. When I announced my intention to my wife, she just smiled knowingly.

Prior to going solo, of course I undertook all the usual training flights. One such flight, again with Kate, involved slow flight and included the effect of flaps. I can't recall the precise details except that I was required to maintain the same attitude while slowly introducing more flap. The nose had wanted to rise and I was told to respond appropriately. This I did, by increasing pressure on the control column.

As more flap was added, more pressure was needed, and by the time full flap was deployed it required significant force to maintain the same picture. Kate then taught me to raise the flaps progressively in order to return to normal flight. This, I learned, was especially important, as the lift generated by the flaps would be removed. Like so many things I supposedly learned during my training, I couldn't altogether understand the relevance. So much to learn and everything required so much brain power. Nothing was automatic and everything required thought.

I flew my first solo with just sixteen hours in my log book on 23 March 1993. Chris was keen that I should then fly solo as much as possible to consolidate my limited skills. The very next day he flew with me briefly before sending me out for my second solo. Flight from Akrotiri was often characterised with winds from the sea which produced updrafts over the cliffs. Since the downwind leg was over the sea, the updrafts would be experienced on both the crosswind and base legs of the circuit. Given the heat of Cyprus, turbulence was to be expected almost anywhere over land. As I recall, circuits were flown at 800 feet thus increasing the effects of both updrafts and turbulence. I was soon to realise that when unexpected things happened, it was for me as the aircraft 'captain' (a term insisted on by Chris) to resolve the matter.

A few days later I had a further flight with an instructor and was then sent to fly multiple circuits. On the fifth approach I selected flaps as normal and made an acceptable landing. I set the flap switch to *up* before applying full power and checking that the carburettor heat was set to cold. The next task was to concentrate on maintaining the centreline and raising the nose at the correct speed. Soon after, I followed the memorised checklist of 'brakes, Ts and Ps, and flaps' which Chris had drilled into me.

I had to dab the brakes to stop the wheels rotating and thus remove their vibration. I had to check the engine instruments – presumably so I would know, in the event of an accident, whether it was the engine or me at fault. Finally, I was to cancel the flaps *up* selection by returning the switch to the centre position. Whilst fighting the turbulence, however, I must have inadvertently stabbed the switch from *up* to *down*. (It seems that the standard switch would be spring-loaded requiring constant finger pressure to operate. On this aircraft there was no such spring bias. Without realising, I had again selected flaps *down*.)

Soon the aircraft was behaving very strangely. I seemed to be climbing at a most alarming angle; all I could see was sky. I knew this was wrong but what could be the cause? A glance at the airspeed indicator told me I was approaching a stall. Resorting to first principles I knew I had to get the nose down and started to push the column forwards. It needed considerable pressure. Despite my limited experience, Kate's instructions came back. I glanced to my left and was horrified to see the flaps were fully extended. What to do? Her further guidance was recalled: raise the flaps in stages and restore flying speed. I was shaking like a leaf but slowly everything returned to normal. I had lost some height but thankfully the aircraft had kindly not stalled.

I remember little of the subsequent circuit but, once landed, I discussed my experience with Chris. He nodded sagely and indicated that it was part of the learning process. I suspect he secretly breathed a huge sigh of relief. He must have wondered just how close I had come to a stall/spin.

What did I learn from this incident? Firstly, when learning anything, challenge *why*: seek an explanation of the purpose of the exercise. Secondly, practice everything you are taught as soon as possible. Thirdly, trust your instructor. Kate was one of the best I ever had the good fortune to meet. Thank you Kate for what you did for me that day and for the many wonderful experiences I've had since I attained my licence. ■

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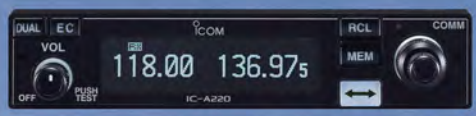

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