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Security - coming to an airfield near you?

By Paul Draper

The events of early August resulting in chaos at British airports may well have made you feel lucky in that you are not subject to the same security constraints as normal airline passengers.

But, be warned, for this apparent advantage may not last for long. Enter the EC proposal COM (2005) 429 being a regulation "on common rules in the field of security". If this comes into force as currently drafted stringent security rules will apply to ALL airports including farm strips and even back gardens from which model flying takes place; some model aircraft are defined as aircraft per the ANO! As if that is not enough to concern you there would also be a need for initial and continuing background security checks on ALL pilots (and aspiring pilots).

A similar regulation has been in force (EC 2320/2002) since January 2003 which was a response to the terrible events of 9/11 in the USA and the EC has decided it needs updating.

In the 2003 regulation, Article 4.3 provided Member States (MS) could, on the basis of a local risk assessment, apply what has become known as the "10 tonne rule", where the application of the security measures specified in the Annex to the Regulation may be disproportionate...at airports:

- (a) with a yearly average of 2 commercial flights per day; or
- (b) with only general aviation flights; or
- (c) with commercial activity limited to aircraft with less than 10 tonnes of Maximum Take Off Weight (MTOW) or less than 20 seats, taking into account the particularities of such small airports.

In most MS this meant GA as a whole was exempted. Furthermore, background checks on pilots were not required.

The problem now is that the "10 tonne" exemption clause is not included within the new draft of the proposed Framework Regulation. Also, the need for pilot background checks is a new clause entirely as proposed by the European Parliament Committee on Transport and Tourism (view the original regulation at <http://www.europarl.europa.eu/oeil/file.jsp?id=5274732> and proposed amendments at <http://www.europarl.europa.eu/omk/sipade3?PUBREF=-//EP//TEXT+REPORT+A6-2006-0194+0+NOT+XML+V0//EN>).

We have been liaising with the DfT in the UK on this matter and they have been very helpful in giving us advice on the process of the regulation. We, in turn, have produced a paper on the subject and its potential effect on GA and they

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Security - coming to an airfield near you?

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have distributed it within TRANSEC (the UK DfT's security branch) and we will submit it to the EC. This paper can be seen at http://www.pplir.org/index.php?option=com_content&task=view&id=193.

The initial view of most MS seems to be that the "10 tonne rule" should be incorporated in the new Regulation. Exactly how this would be framed has yet to be decided but would be one of a number of "derogations" to be agreed (or not) by the MS; those derogations will not be set out in the Framework Regulation currently under negotiation but in the related Implementing Regulation (IR), which will replace the extant Regulation 622/03. MS do not want details of derogations to be public knowledge and the new IR will be a restricted document and both the drafts and the final text will only be circulated on a strict "need to know" basis i.e. to the security organisations. The events of early September will not help it being easily agreed.

The position on background checks for pilots is unclear.

Apart from the issues of time delays, costs and civil liberties for existing and aspiring GA pilots, these proposals will do nothing to prevent a determined individual from GA carrying out a "terrorist style" attack. Furthermore it is likely to do severe damage to the flight training industry. We suggest it would be more realistic to ask that pilots produce current valid identification (driving licence/passport) if they are not known by the management of airfields; but this cannot of course apply to farm strips etc. Applicants for pilot licences might be required to produce proof of identity to the organisation or assessment body receiving their application, as is already the case in many member states.

It is self evident that someone intent on carrying out such attacks could be far more effective in doing so by e.g. driving a car / van / fuel laden truck and blowing it up in a location designed to maximise its damage; this has regrettably been amply demonstrated by the events of 7th July 2005 when public transport was targeted by terrorists on foot. Small aircraft pose no 9/11-style threat as is evident from the almost insignificant number of such aircraft crashing into buildings whether by accident or design.

So, what are we to do about all this? We have already submitted the paper noted above and are liaising with our partners at Europe Air Sports for the regulation will apply in all EC States; to have exemptions here and not equally applied elsewhere could cause chaos. Hence whilst co-operating with the DfT officials, who do understand our position, we shall pursue lobbying of our MP friends on the Parliamentary Aviation Group and MEPs. Watch this space!



Ole Henriksen

1997 – 2006

Ole Henriksen has retired as PPL/IR Europe Membership Secretary and Director after ten years of stalwart service to the organisation. Ole became our "First Point of Contact" in 1997 and was elected Membership Secretary the following year. He introduced our logo, stationery and air crew card in 1999, did magazine layout and production from 1999 to 2002 and has been involved in our various web sites on and off through the years.

A CAA PPL/IR turned FAA ATP, he flew his Twin Turbocommander far and wide, including several Atlantic crossings and African sojourns. Though his milk run was between his homes in Guernsey (EGJB) and Copenhagen Roskilde (EKRK), he enjoyed flying the length and breadth of Europe.

After selling his Commander earlier this year, Ole has been winding down his aviation interests and he finds the time has now come to retire from his very active service to PPL/IR Europe. These few words are therefore to thank Ole for the excellent job he has done on behalf of the organisation. We are pleased to report that he will remain a member and continue to assist the editorial staff of Instrument Pilot magazine. We wish him tailwinds and soft landings whatever else he does.



CAA Safety Evenings

CAA safety evenings for the remainder of 2006 are shown on the right. As always, everyone involved in General Aviation in the area is invited and strongly encouraged to attend these evenings, which are relevant to all forms of GA activity no matter what the host organization. Most evenings are free, although there may be a small charge at certain locations to cover costs of venue hire or refreshments, and those attending have the opportunity to win prizes donated by generous sponsors in a free raffle.



Date	Area/airfield Location	Organiser	Phone
10/10/2006	Hucknall, Rolls Royce	Colin Anthony	07901574173
11/10/2006	NW Microlights, Tickled Trout, M6 J31	Nick Hayes	01254 830851
18/10/2006	Enniskillen Airport	Ted Veitch	02866 322077
20/10/2006	Prestwick, Aviators Lounge	Suzanne Wilson	01292 476523
31/10/2006	Caernarvon Terminal	Sam Betley	01286 830800
01/11/2006	Shobdon, Restaurant	Matthew Stocker	01568 708369
02/11/2006	Leicester Control Tower	Roger Partis	0116 2592360
06/11/2006	Winchester, IBM Hursley Clubhouse	James Mason	07775 691439
08/11/2006	Manston, TG Aviation	Mark Girdler	01843 823656
09/11/2006	Headcorn, Staplehurst Village Centre	Mary Pearson	01622 891539
05/12/2006	Goodwood Aero Club	Sally Elliott	01243 755066
13/12/2006	Farnborough (please call beforehand)	Anthony van de Geest	01252 554 554
14/12/2006	Exeter, Stowey Arms, Exminster	Chris Howell	07970 251386

The life and loves of a serial composite lover

By Peter Bondar

Well it's Saturday morning and the Editor's clarion call means that I'd better write that long promised article on the Diamond Aircraft Industries' DA42 Twin Star!

For those business management professionals amongst us who like to just digest the salient highlights in a calm and dispassionate style and then move on, here is the summary.

The DA42 Twin Star is a joy to fly, slightly heavy on the controls, especially at speed. A surprisingly large amount of adverse yaw can be created when not leading with an adequate push on the rudder. The finish is quite outstanding and exudes quality in a way I have not seen on any other aircraft. It flies at around 165 knots anywhere between 5,000 and 15,000 feet burning 12 US gallons per hour (for both engines). Engine out, it flies surprisingly well on only one 135 hp engine, however all the normal behavioural problems of light twins; anaemic climb performance, very heavy rudder pressures until trimmed out, and the dire consequences of closing the wrong engine down and/or trying to rack it around the circuit asymmetrically all still apply, despite very cute aerodynamics touches everywhere. The Garmin G1000 is also great to fly with once you have done 20 hours on it but is a pain in the butt when moving from the old 'six pack' and discrete radio stack and you just want to tune a radio for the first time or enter a squawk code.

Emotion

For me flying is all about emotion and this is what this article is all about; the highs, the lows, oh to be in love, the frustrations, the angst!

The whole love affair started in December 2002 when the DA42 first flew. UK's *Flyer* magazine led us astray with a flight test which appeared to endorse the factory's wildly speculative superlatives of 203 kt at 10 US gallons an hour (for both engines) and 1750 ft per min ROC.

Like many serial lovers, I was seduced at once, despite the fact that I already had a DA40 (A 180hp single engined Diamond four seater) which had not lived up to the marketing hype.

I put my \$1,000 deposit for a place in the queue and waited. And waited. And waited. And waited.

First deliveries were slated for quarter one 2004. First deliveries actually happened quarter one, 2006! Again having waited nearly two years longer than planned for the DA40 I should have known!

Fortunately I had already decided that being first in the line for a brand new twin from a company that had never built one, along with the first implementation of an all glass flight deck plus only the second implementation of brand new diesel engines was going to add up to a whole load of teething and shakedown problems. So I dug in for a long wait! Wisely I decide to place myself half way down a queue that by this time totalled over 400 orders even before the first production plane had rolled of the line. The first planes were rolled out in April 2004 and then promptly rolled back in Diamond's factory! The first owners had thrown their toys out of their collective prams, primarily because the top speed was way down on the



original figures. As a result the aircraft disappeared for about a year as they reworked the cowls and the cooling system to buy back some performance.

Over-heating

Being liquid cooled, turbocharged and a diesel engine running pretty hard, getting rid of the waste heat proved to be more problematical than the simple computer aided design computers had predicted. The fuel was getting too hot since 75% of the fuel that goes through the engine gets returned to the tank and the turbos were overheating because the intercoolers couldn't cope with the high altitude requirements. The net result was five, yes five radiators per engine (one intercooler, one oil cooler, one fuel cooler, one water cooler and one heat exchanger for cabin heating) plus a whole load of fancy scoops and ducts on each engine.

So finally in April 2005 the DA42 finally and irreversibly rolled of the production line. The first UK sample G-HANG saw service (and still does) at Atlantic Flight Training where it has now recorded about 450 hours of punishment at the hands of baby ATPL students. So it came to pass in May 2005 that the day of delivery arrived for yours truly. Under the agreement I had signed I was obliged to pay the remainder of the deposit once I had had a 'satisfactory' test flight. Since the factory had broken their side of the agreement by failing to come within 5% of their published figures I decide I would have my test flight then say thanks but no thanks! The UK Diamond Sales Manger Henrik Burkal (paradoxically a Dane) was very understanding about my issues and concerns, and just suggested we flew the aircraft and then review the situation.

Sold!

Walking out to the ramp towards OE-FAB my first thoughts were, "Mmh much bigger looking and with real 'presence'". As we did the walk around the quality of the build came home (and as one who has built a composite aircraft from scratch, I tend to have an eye for the bits that are easier to botch than do properly). Sitting in the P1 seat surrounded by leather my well planned decision not to buy the plane was going backwards. The Garmin G1000 panels lit up in splendid Technicolor as the master switch was thrown, the decision to not buy having moved to buy! As the left-hand engine metaphorically spooled up like a turbine the deal was done. As I was firing the right engine up my thoughts were "How do I transfer the rest of the deposit fast enough to keep my position in the queue!"

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By Matthew Stibbe

Matthew Stibbe is editor of ModernPilot.com, the free online magazine for pilots

Supersonic Business Jet

Concorde isn't flying any more but several companies are working on plans to produce supersonic business jets. One is Supersonic Aerospace International. They have partnered with Lockheed Martin's fabled Skunk Works to produce a twin-engine design that minimises the sonic boom so that the plane can fly across country. Personally I miss the sound of Concorde flying over my flat but, surprisingly, most people prefer their jets quieter. The company hopes the plane will be ready to fly by 2011 and cost \$80m. I'll take two.



Microsoft Flight Simulator X

The latest iteration of Microsoft Flight Simulator is now available as a beta download from www.microsoft.com/games/flightsimulatorx/downloads. Although this is the tenth version of the program, the 'X' in the name is pronounced 'ex' not 'ten'. Initial impressions are very exciting: the visuals are vastly improved. Cars move along roads, water ripples and the weather looks more realistic.

Eclipse Certified



Eclipse Aviation received a provisional type certification for the Eclipse 500 on July 27th at Oshkosh. The company hopes to have full certification, including RVSM, single-pilot and IFR, by August 30th. The company also announced that it has proved to be the quietest jet ever. In

fact, it is quieter on take off and approach than the single-engine piston Cirrus SR-22. The \$1.52m (in July 2006 dollars) aircraft has a maximum cruise speed of 370 knots and an NBAA IFR range of 1,125 nm. It is the first very light jet to be certified.

Diamond price increases and new models

Austrian plane maker, Diamond, has announced that its 315-knot D-Jet personal jet will now cost \$1.38m. This is substantially more than the original promise of a sub-million dollar price point. It is also very close to the Eclipse, which benefits from an extra engine. However, the company has confirmed that a Cirrus-like whole airframe parachute will come as standard for this price. A cheaper, lighter model with less equipment may follow initial certification. Keeping the weight of this model under two tonnes will help owners avoid en route charges in Europe.



At the same time, the company announced an upgrade to its DA40 single-engine propeller aircraft. Thanks to an improved exhaust and propeller, the DA40XL now has a top speed of 160 knots – 30 knots faster than the standard Lycoming-powered model. European pilots may be more familiar with DA40 TDI which is powered by the Thielert engine running jet fuel. However, the Lycoming version is built in London, Ontario and can be imported back into Europe.

New Garmin glass cockpit displays

Diamond aircraft feature Garmin G1000 avionics. The company has announced that these displays will also now be available for retrofit, starting with King Air C90s. The installation will cost about the same as a new DA40.



For pilots with smaller budgets who still want the latest in avionics, Garmin has also announced the G600. It consists of two displays that stand side by side in the same space as a traditional six-pack display.

At under \$30,000 (plus the cost of the additional G430 that goes with it) the G600 will bring glass cockpits to a range of smaller, cheaper and lighter aircraft and also provide a modern upgrade path for older aircraft.

Cirrus Personal Jet

More rumours but little detail on the Cirrus Personal Jet. Alan Klapmeier told reporters at Oshkosh that the plane will be fitted with a parachute, will only have one engine and ... well, that's about it. Rumours abound of collaboration with Eclipse and



Unofficial artist impressions of the potential Cirrus Personal Jet



of would-be owners handing over deposit cheques, spec unseen.

However, Cirrus has been more candid about its new turbo engine for the SR-22.

The company worked with Tornado Alley Turbo to create a twin turbonormalised, dual intercooled engine installation. They have also added GAMinjectors, a new propeller and built-in Oxygen system. The result is a Cirrus with a cruise speed of 211 knots and a ceiling of 25,000 feet.

Farnborough F1 takes off

Many pilots will remember Richard Noble's crusade to build a turboprop-powered air taxi. Working from portacabins in a hangar at Farnborough his team designed the F1 and attracted substantial sponsorship and investment but, sadly, ran out of money. I thought this was the end of the story. Not so. Farnborough Aircraft Corp. Ltd. (FACL) emerged phoenix-like from the ashes and has been labouring away in Bend, Oregon to build the first prototype, which took flight on 29th July. The aircraft still promises over 350 knots, short field performance and the ability to carry six passengers. Due for certification in 2008, it could be a powerful competitor for the Socata TBM-850 and the new crop of VLJs.

Isle of Man to start aircraft registry

At the time of writing, the "Department for Transport" has yet to issue its final report on the foreign registered aircraft in the UK. British pilots were concerned that it may restrict our ability to fly American-registered aircraft and take advantage of our FAA instrument ratings. Now the Isle of Man has announced that it will set up its own aircraft registry. The main benefit will be to allow aircraft owners to take advantage of the territory's favourable tax arrangements. However, once established it may provide a nearby, friendly (but well-regulated) registry for any refugees created by the Department for Transport. Aircraft on the IOM registry will have the tail prefix M. So anyone called Mike will also want to register his aircraft there.

Coal-powered bombers

The US military consumes more oil than many small countries. The Air Force alone consumes £2.5 billion-worth of the stuff every year, about one per cent of the country's total consumption. As part of an effort to reduce dependence on foreign fuel reserves, the USAF has begun testing coal-powered B52 bombers. The process involves liquefied coal and was first tried during the Second World War by the Germans. Since America sits on a quarter of the world's known coal reserves it means that the eight-engine bombers can keep flying even if their targets are in oil producing countries. The USAF has not answered the key question; will they fit a steam whistle?



Refilling a B52 - one lump or two?

And alcohol-fuelled light aircraft

Aviation fuel doesn't grow in trees but it can grow in fields. The South Dakota Corn Utilization Council is researching the use of grain alcohol to power light aircraft. Using a mixture of 85% ethanol, light hydrocarbons and biodiesel fuel, they claim the GE-85 (aviation grade ethanol) will burn cleaner and prevent carburettor and fuel line icing. One drawback is reduced fuel efficiency. The project has been running for 11 years and the ethanol-powered fleet includes a Mooney, RV3s and a Seneca. Suitably converted aircraft can run 100LL and GE-85. So when the coal-powered bombers have pushed the price of AVGAS beyond our reach, the farmers of South Dakota will keep us flying.

*The fuel system for this Mooney has been modified for operation on both ethanol and avgas. It has been flown from coast to coast for shows including AirVenture, AOPA Expo (FL and CA) and Sun-n-Fun, accumulating over 700 trouble free hours on Aviation Grade Ethanol-85
©2006 South Dakota State University*



Digital Air Traffic Control

Most of the dialogue between controllers and pilots consists of handovers, frequency changes and straightforward heading and altitude changes. In busy sectors like Maastricht, these simple calls can account for 50% of a controller's time. Sectors are getting busier and busier. "Traffic in and out of the U.K. will double in the next 12 years," said Richard Wright, a spokesman for Britain's National Air Traffic Services. "Despite the downturn in long-haul since Sept. 11th, there is a rapid growth in intra-European travel driven by the low-cost carriers like easyJet and Ryanair."

VHF data links can digitise routine exchanges, leaving pilot and controller free to concentrate on flying and safety. They will also allow controllers to handle more aircraft and reduce ATC delays and bottlenecks.

In effect, it moves air traffic control from a serial model to a parallel one. Today, one controller manages an entire sector because only one person at a time can speak on a given radio frequency. With digital links, several controllers can monitor the same sector and handle routine instructions using the data link.

A combination of ADS-B (Automatic Dependent Surveillance Broadcast) and GPS satellite navigation implements these data links between aircraft and from aircraft to ground-based controllers. By providing traffic displays in cockpits, ADS-B also improves safety. Trials in Alaska have shown that the accident rate has dropped by 49 percent since ADS-B started testing. The FAA has requested \$80m for its next generation ATC system and ADS-B will be the backbone. *(See page 13 for a review of ADS-B - Ed).*

GA deliveries increasing

The US General Aviation Manufacturers Association (GAMA) reported a 19 percent increase in new aircraft deliveries in the first half of this year, with billings rising by 35 percent to \$8.8 billion. Business jet deliveries increased more than turboprop deliveries (28 percent vs. 12 percent).

HondaJet gets real



Honda has announced that it will build its HondaJet. The much heralded prototype with podded engines mounted above the wings will be built in the US. The seven-seater has had 240 hours of testing so far and has reached 43,000 feet and 412 knots. The unusual engine configuration allows for greater cabin space and a smoother wing. Certification is expected in three to four years. Honda will work with Piper Aircraft to provide a worldwide sales and maintenance arrangement.

In related news, the aircraft company formerly known as New Piper Aircraft has dropped the word 'new' from its name. It has also hinted that it will produce a personal jet to rival Cirrus and Diamond's. Come on Cessna. All the cool companies have one.



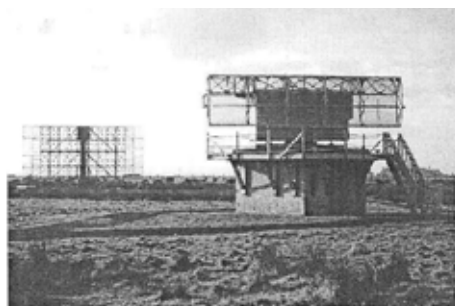
RADAR

THE EVOLUTION OF RADIO DETECTION AND RANGING

By Peter Berry MRAeS

With the coming of peace in 1945, many wartime radar stations began to be manned by 'demobbed' air traffic controllers who were tasked with assessing the usefulness of radar where the controller was able to 'see' the movement of aircraft, in place of the mental picture of aircraft being 'seen' from the ubiquitous 'procedural' flight progress strips. It was not long before radar controllers were being asked by their Airway 'D' procedural controllers to identify a subject aircraft and turn, climb or descend the flight onto a more expeditious routing. One of the earliest radars was located on London Heathrow Airport, serving the Airway 'D' controllers in the Southern Air Traffic Control Centre, at that time also at Heathrow. This transmitted 1/ms pulses, with a narrow beam-width of one degree. Turning at four rpm, pulse rates of 350 or 280/second resulted in ranges of 150/260nm.

This radar was complemented by a height finding radar, shown to the right of the picture. This radar head 'nodded' up and down on a base, which could be rotated to scan the aircraft being tracked. Although the radar picture had a basic height scale, it was usually used as a comparison finder between two conflicting aircraft and had a range of some 100nm. A cathode-ray direction finder was an essential ingredient to identification at all area radar stations.



Gailes Type 14 High and Type 7 Radar heads.
Photo: Peter Berry

Many Ground Controlled Interception (GCI) radar sites were converted to civil use, one such being the Scottish Airways Radar Station at Gailes on the Ayrshire coast. In operation from 1963-1978, the station had a mix of radar heads and a range of around 120nm.

Aircraft Identification

An early success with the vexed question of identifying 'Friend or Foe' was a small black box named IFF. Fitted to allied aircraft, it enabled air defence radar stations to interrogate aircraft and when switched on, the IFF transponder would show an extra 'blip' to the primary radar echo.

In the early post-war years of civil aviation, CR D/F bearings and 'ident turns' were the accepted rule for identification. In the 1950s, secondary radar began to appear, where civil and military aircraft were slowly fitted with transponders, which, when interrogated by a Secondary Surveillance Radar (SSR) radar on the ground, would show a discrete signal on the radar displays. A total of 4096 transponder codes were available enabling an assigned 'squawk' to be given to individual aircraft being worked by each radar equipped ATC.

However, 4096 codes were soon used up by civil and military aircraft and a complex management system worldwide was necessary to avoid duplication. From 2008, Mode S radar systems will replace SSR, where each aircraft will be assigned a 24-bit address, unique to that aircraft. With 167,772,216 addresses available, it should contain the world-wide aircraft families. The bandwidth of Mode S, will also allow controllers to access many items from the flight systems in the cockpit, reducing R/T loading and the management of aircraft codes.

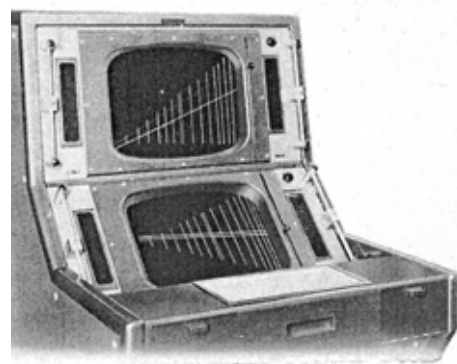
Development of radar approaches

Because the number of GCA equipments was so small (some ten civilian sets in 1948), early Airfield Control Radars required aircraft to fly visual approaches to each of the say, six runway approaches. Eventually, the azimuth path came to be carefully plotted and marked on the Perspex overlay. One mile range rings were selected from the radar head and these were added to the



azimuth marks. The result was developed into a safe basic 'talkdown' aid, with the great advantage of being instantly available to any one of an airfield's approach paths.

With an initial approach height of 1,500ft AGL, a landing aircraft could be turned onto a final approach at say seven miles. With landing checks completed, the aircraft was instructed to begin a descent, at 500 feet per min, just five miles from touchdown. As each mile marker was approached, the aircraft was given a check height at each 300 feet per mile, with four miles at 1,200 feet until one mile at 300 feet. Minima for the approaches were a cloud base of 300 feet and a visibility of two miles making it a revolutionary and very useful approach aid.



Standard Telephones Precision Approach Radar (PAR).
(Standard Telephones)

RAF Defford

The founders of the Blind Landing Experimental Unit (BLEU), were just leaving the Telecommunications Research Establishment (TRE) at Defford in 1946, for a new base at Martlesham Heath. Their twin-engine Boeing 247 was still there. This aircraft, the prototype of which was

first flown in 1933, was the first of the all-metal, retractable landing-gear airliners and at Defford, had pioneered the early 10cm night fighting radar. An American team headed by Lt. Col. Francis L. Moseley USAAF, had arrived in 1944 from Wright Field with the first SCS.5 (ILS) approach landing aid. Moseley also brought with him a 'breadboard' unit he had constructed, to link the signals from the SCS.5 into the autopilot in the aircraft. Moseley was able to demonstrate the superior approach guidance from the azimuth and glide-path signals and later, with the link unit fitted to an RAF B-24 Liberator, he demonstrated 'coupled-approaches' to the SCS.5. The Boeing 247 was not fitted with flaps, but was fitted with a Honeywell autopilot and the TRE 'Boffins' decided to fit an SCS.5 receiver and Moseley's coupling device to the ageing Boeing 247 transport aircraft.

This allowed the pilot to set the aircraft to its approach configuration, trimmed out and with wheels down for landing. The autopilot was then 'coupled' to the azimuth and glide-path beams of the SCS.5 for an approach. The stable approach characteristics of the Boeing, together with favourable wind conditions, resulted in the first complete automatic approach to a touchdown in October, 1944. To gain pilot confidence in the system, during moonless nights in January 1945, coupled approaches were attempted in the dark, with the entire airfield lighting switched off. Wing Commander Griffiths found that descending through 100 feet, his nerves gave way and he had to switch on the aircraft's landing lamps. Of course, there was the runway, exactly where it should be! I would meet 'Autoland' later in my career.

RAE Bedford

Following the early trials at Defford, the BLUE unit moved to RAF Martlesham Heath, with further trials taking place on the long and wide runway at nearby RAF Woodbridge. The unit moved to its new home at RAE Bedford in April 1957.

By this time, the BLEU fleet had expanded to tri-cycle geared Varsity, Canberra, Devon and the small Avro 707A delta aircraft. Their research and development tasks included ILS improvement, auto-throttle, auto-approach coupling, radio altimeter and auto-flare, all necessary components to a successful automatic landing system.

Because of the loss of accurate azimuth signals from the early ILS localiser beam approaching touchdown on a runway, BLEU developed a magnetic 'leader cable'

guidance system on each side of the runway to overcome this problem. The leader cable system was used from 300ft in the descent until approaching touchdown. Improved ILS equipment and the safeguarding of areas adjacent to instrument runways were to replace this guidance system. (Note the 'CAT III' Holding Point Boards on selected Airport runways. As part of the development program, ATC always watched the Autoland approaches on the Precision Approach Radar).

In those early days, RAE Bedford had no 'protected' approach airspace, just the 1.5 miles from the aerodrome boundary and up to 2,000 feet above the height of the airfield. Using the PAR azimuth and glide-path pictures, controllers were able to warn the Autoland aircraft of the position and relative height of conflicting traffic crossing the Runway 27 approach.

**Bedford Radar Approach Control.
(Marconi 144937, 1957)**



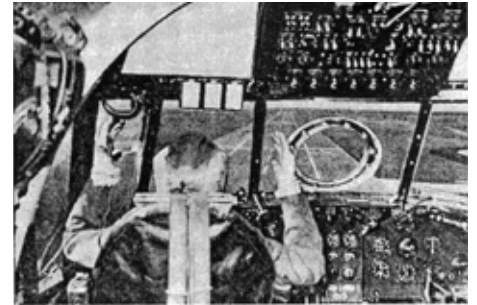
Pete with a picture of the Marconi Type 14 High picture at RAE Bedford. (RAE Bedford 1038, March 13, 1964)

With the arrival of BLEU, the Met forecaster, Jack Houseman was quite stretched in having to forecast the poor visibilities demanded by the Blind Landing team. Bedford was, in the years 1955-65, a good source of poor visibilities, due to the output from the adjacent brickfields and the East Anglian low cloud. It was possible to count the days of the year on one hand when there was more than five miles visibility.

During 'live' Autolands, Jimmy Graham was often the Runway Controller, and as the aircraft began its approach, he was tasked with walking onto the runway from his caravan to read the Runway Visual Range, by counting the number of centre-line lights he could see. As the Tower Controller, I had to ensure Jimmy was off the runway in good time before the aircraft landed. On one occasion Jimmy failed to report 'Clear of Runway' so I had to instruct the approaching aircraft to overshoot. Later, Jimmy said the fog was so thick he couldn't find the caravan at the side of the runway to report clear!

BLEU gave a demonstration to the military, civil and press representatives in

October 1958, showing their progress with coupled-approaches to automatic landing. Using twin-engine Varsity and twin-jet Canberra aircraft, approaches and Autolands were successfully demonstrated. In 1961, The RAF adopted the BLEU/Smiths Autoland system for Bomber Command, which was subsequently fitted to the Vulcan and Victor 'V' bomber fleet and to the Shorts Belfast transport.



View from the BLEU Varsity Cockpit during Autoland.

In October 1961, a Douglas DC-7, callsign Brad 25, arrived at RAE Bedford fitted with the British 'Autoland' system. Before departure it had been fitted with a Sperry SP-20 autopilot, British Murphy leader cable receiver, Standard Telephones radio altimeter and Smiths auto-throttle unit. A comprehensive recording system was also fitted to assess each approach and landing. The FAA considered the system proved, but wished to continue their program to assess the performance of the pilot in monitoring the system during approach, landing and the roll-out under poor visibility conditions. By May 1962, some 320 automatic landings had been achieved at Bedford and Stansted by the DC-7, with leader cable and ILS guidance to touchdown. By 1966, some 22,000 Autolands had been completed at R.A.E. Bedford and elsewhere.

Peter Berry, MRAS, was trained as a Runway Controller for the Ministry of Aircraft Production in April, 1945. Served at RAF Westcott, Stoke-on-Trent/Meir and York/Rawcliffe. After three years in the RAF, TFU Defford and No.80(F) Sqdn. Wunstorf, Germany, Tempest V and Spitfire F.24. He then joined the ATC Team at RAE Farnborough in April, 1948, just before the first of the SBAC Shows. After the 1955 Show, he re-assigned to the new Tower at RAE Bedford. In April, 1965, he moved to Scottish as an Airways and Oceanic Controller. His last five years of service was to lead the ATC Applications Team, introducing real-time computers to Oceanic ATC, retiring on July 31st, 1987. He is also a 200+ hours PPL with Night and IMC Ratings.



Pilots' Talk

Dates for your diary

Highlands and Islands Spring Tour Friday 25th–Tuesday 29th May 2007

Linda and Anthony Mollison are organising a Highlands and Islands Tour for the late May bank holiday 2007. The proposed itinerary includes a potential visit to a whisky distillery, a ceilidh and a music festival. The trip is subject to confirmation, especially as this is a busy time of year. Further details are on the website www.pplir.org or from Linda Mollison Linda@pat.uk.com.

Spain & Morocco 2007

Following the very successful trips to the Greek Islands in 2005 and Tunisia and Sicily in 2006, a trip to Spain and Morocco is being planned for 2007. This will take place in May (to avoid the hottest weather). An exact itinerary has not yet been finalised but is expected to last nine or ten days with possibly an initial meet up in Valencia on Saturday 12th May, followed by visits to Fez, Marrakech and Seville. If you are interested in joining the trip, please express your interest by emailing your details to Anthony Bowles at gajb@corsock.com

'Weather to fly' - 14th October Weather Seminar at Oxford

There will be a Seminar jointly organised with the Royal Meteorological Society on the subject of 'Weather' courtesy of Oxford Air Training's Deputy Chief Ground Instructor Peter Pitcher.

Programme being arranged includes:

- ☞ *Lead Presentation - BBC's Peter Gibbs*
- ☞ *NATS Distress & Diversion Cell - 'When it All Goes Wrong'*

The 'early' booking price is £20 inclusive of refreshments; a range of lunches can be purchased in the restaurant - full details in the summer issue of *Flight Safety*.

Incidentally, at the last Oxford Seminar Helen Young described some aerodromes which have 'local' weather situations or effects of a particular wind direction. These are well known to pilots who operate from that site but may not be known to

visiting pilots. These need to be collected and somehow made available. Let's start by collecting them; we could start by putting them on the GASCo website. Email me at the GASCo Office to john.thorpe@gen-av-safety.demon.co.uk

Landings for single engined aircraft will be about £6. To obtain a Registration Form or if you would like any further information, please call 01634 200203 or email info@gasco.org.uk or penny.gould@gen-av-safety.demon.co.uk

Met for aviators courses

The UK Met Office will be running further courses for GA pilots this Winter on 11th-12th December 2006 and 22nd-23rd January 2007. The glider pilot's course can help prepare delegates for the meteorological elements of the British Gliding Association's Bronze C badge and the Met for Aviators course is aimed at light-aircraft pilots, and covers topics such as basic meteorological theory, interpretation of charts and explanations of METARs and TAFs. The cost of the two day courses is £249, plus VAT. Telephone 01392 886428 http://www.metoffice.gov.uk/training/ct_aviation_form.html.

Refresher workshops exclusive to PPL/IR Europe members

A Workshop will be held on Saturday 2nd December 2006, 10:30 to 16:00 hours. The workshop is subject to a minimum of four confirmed delegates four weeks in advance (and to a maximum of six delegates). Cost (including VAT) £150.00 - payable at time of booking. These courses are run on a 'not-for-profit' basis and take place at Professional Air Training Ltd, Bournemouth Airport. Arrive by car or air. For further details and booking: Tel. +44 1202 593366. Fax. +44 1202 574020. E-mail info@pat.uk.com

GAPAN bursaries available for flying instructors

The Guild of Air Pilots and Air Navigators have announced the availability of bursaries for flying instructors to gain extra ratings in instrument, multi engine or aerobatic

instruction. Details are available on www.gapan.org.uk or from The Bursaries Secretary, GAPAN, Cobham House, 9 Warwick Court, London WC1R 5DJ.

Squawk 7401

Starting from November 23rd 2006, all aircraft receiving a flight information service from "London Information" will be asked to select the transponder code 7401. The selection of this code will mean that a controller at a radar equipped ATC unit who sees an aircraft displaying a 7401 code heading towards, or already in, controlled airspace will know who the pilot is talking to and will be able to quickly contact London Information. Once the aircraft has been identified, (usually by requesting the pilot to "squawk ident"), the radar unit will be able to request the aircraft be transferred to their frequency to resolve any confliction or pass instructions to the FISO to assist the pilot to remain clear.

This procedure should result in improved controller awareness such that inadvertent infringements by any aircraft, (whilst talking to London Information), are quickly and safely dealt with before traffic is disrupted or aircraft are put at risk. It is very important that on termination of the service with London Information the SSR code is changed to 7000, (or the code requested by the next ATC unit), to maintain integrity of the system.

The London Flight Information Service (FIS) is situated at the London Area Control Centre, Swanwick in Hampshire and is staffed by Area FISOs. It is important to note that London Information provides a flight information and alerting service only. London FIS is not equipped with radar. The fact that a pilot is asked to select an SSR code does not mean that they are being radar monitored or in receipt of an ATC radar service. The procedure is being brought in as part of a concerted effort by NATS to reduce the number, and severity, of infringements of controlled airspace, danger areas and restricted airspace. This will increase safety for both GA and commercial flights. For further details see UK AIP AIC 109/06 Yellow 220 Published 14th September 2006. (Flyer email via Paul Handover)

Airfield Updates

At **Lakenheath**, Suffolk, the road which originally ran through the Base (Lords Walk) was closed as a security measure after the September 11th terrorist attacks, but the Forest Heath District Council agreed to accept a £25,000 road investment package from the Ministry of Defence to ease the strained relationship between the local residents and the USAF Base. It is reported that the US Military spent almost £100 million on construction and renovation of its bases in East Anglia, including a 4,000,000 gallon reservoir under RAF Lakenheath.

Catering and retail outlets at **Manchester International Airport** in Terminal 1 are to be given a £25 million overhaul to attract more big names and extend the choice of brands and products available for passengers. The ground-breaking redevelopment programme is scheduled to begin from September so the first phase can be completed in time for the start of next year's main holiday season. The aim is to create a much more welcoming and stress-free environment which will encourage passengers to relax while exploring a wider range of top quality stores, restaurants and bars before boarding flights. Passengers have helped to shape the redesign by telling us what they want and need in response to customer satisfaction surveys. Artists' impressions of how the make-over will look have been sent to major retailers and caterers to give them the opportunity to get involved. While high-street retailers are feeling the pinch, airport-based stores and sales outlets are enjoying a growth in retail income and so interest in the scheme is predicted to be brisk.

Old Buckenham, Norfolk is on the market as an operational airfield with three runways, five hangars, a clubhouse, parachute drop zone and two general purpose buildings. It is on the market for about £1.5M).



In **Radlett**, Hertfordshire the last remnants of the **Handley Page** (Radlett) airfield are due for demolition. The new owners they estimate it will take them three months to demolish the hangar from the inside out.

Bitteswell Disused Aerodrome is to bite the dust, so to speak, as a disused. The Directorate of Airspace, following advice from a member of the public, checked their

aerial imagery and agreed that "The VRP is listed in the UKAIP in the AD entry is no longer visible and we propose to remove the disused symbol from the VFR charts. ...we will contact Coventry Aerodrome with the recommendation that the VRP be renamed something along the lines of 'Magna Park Industrial Area'. (*Airfield Research Group*)

Strubby Airfield, supported by the General Aviation Awareness Council (GAAC) has succeeded in getting the planning application to build a windfarm in the circuit dismissed. The construction of the windfarm would have significantly affected flying at the airfield and could have brought about its closure.

A GAAC press release stresses that all airfields should seek the protection of safeguarding from damaging planning developments and should read GAAC Fact Sheets 4a and 4b which explain how Safeguarding is achieved. The Fact sheets are available free of charge at <http://www.gaac.co.uk/> or by contacting the GAAC office. The GAAC is concerned with all matters of Government and Local Authority policy concerning airfields and is working closely with the CAA to ensure that the needs of airfields are considered at an early stage in the Planning Process.

This is an organization that really deserves the support of all pilots and punches immeasurably above its weight despite scant resources – Ed.

ICAO wants ELTs on all international flights

Starting July 1st, 2008, all private and commercial airplanes operating internationally will need to carry at least one emergency locator transmitter, according to a proposed standard from the International Civil Aviation Organization. The proposal, if enacted, also states that beginning July 1st 2008, "automatic" (406 MHz) ELTs must be carried on all international operations of both commercial aircraft authorized to carry 19 passengers or less and private aircraft of any number of passenger seats that obtain their certificate of airworthiness after that date. International operations of commercial airplanes authorized to carry more than 19 passengers and issued with certificates of airworthiness after July 1st 2008, would have to be equipped with at least two ELTs, one of which must be automatic. Current ICAO standards call for ELTs only on airplanes operated on extended overwater flights and on flights over designated land areas where search-and-rescue operations pose a special challenge. (*AINalerts*)

Refuse a drug test and lose your license – that's just in the US... at the moment

The FAA has adopted a 2004 notice of proposed rulemaking amending airman medical standards so that a refusal to submit to a required drug or alcohol test carries the same penalty as failure of a test – revocation or disqualification from holding an airman medical certificate. The same penalty awaits a pilot with an alcohol test result of 0.04 or greater. Further, the FAA proposes to standardize the time period for reporting refusals and certain test results. The new rules also require employers to report pre-employment and return-to-duty test refusals. It also amends the airman medical certification requirements to allow suspension or revocation of airman medical certificates for pre-employment and return-to-duty test refusals. The new rules went into effect July 21st. Scheduled and unscheduled drug and alcohol testing is required for pilots operating under Part 135 or 121. (*AINalert*)

Wings Around the World by PPL/IR Europe member Polly Vacher

This is just to inform you that my book "Wings Around the World" is now out!! I am 'unashamedly' marketing it as all author royalties/proceeds go to 'Flying Scholarships for the Disabled' (FSD). Because of this, John Davies from Grub Street Publishing has pledged to give a percentage of his profits to FSD as well. This is wonderful and we are all at FSD so excited at this opportunity.

"Wings Around the World" is about my last solo polar flight over the North Pole and into Antarctica. It tells anecdotes and stories about my training, preparation and the flight itself. It discloses things that have never been disclosed before and is filled with beautiful pictures as well - so makes a nice Christmas present.

"Wings Around the World" can be purchased from: www.worldwings.org £20 plus £4 P&P (UK), £5.50 (Europe) & £7.50 (Outside Europe). This can be personalised if you send a message with your order (who you want it personalised to and any special message). Also, signed copies are available from Grub Street Publishers: 4 Rainham Close, London SW11 6SS £20 (P&P included), £27.50 (Outside UK), Tel: +44 (0)207 924 3966 or email: milhis@grubstreet.co.uk or www.grubstreet.co.uk (*Polly Vacher*)



Getting a FAA IR at Chandler Air Service, Arizona



By Peter Holy

The third and final part of Peter's US experience

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Peter Holy concludes his account of getting an FAA Instrument Rating at Chandler Air Service in Arizona

Planning for the check ride

The job was to plan the flight back at the hotel, as an IFR flight obviously, taking into account the various rules on the chart and the approach plates, etc. It is different to European airways flight planning and is much easier; for example there are no mandatory Standard Route Documents so no need to plug away at the CMFU website to get a valid Eurocontrol flight plan. I was also to fill in a real flight plan form (which is simpler than the ICAO one) - but not actually file it because as far as ATC was concerned all this training was under VFR. It took a few hours to do the planning. One has to work out the altitudes (no “flight levels” below 18,000ft in the USA) and get the winds aloft along the route. Traditionally this is done with a phone call to 1-800-WX-BRIEF and unless you are lucky the forecaster will talk so fast you initially won't catch much of it. There is also a way to get the same data off the web but I never found it. So I used the GFS data which we use in Europe, mainly for longer range forecasts, and Avbrief for TAFs and METARs.

They allow the use of any method of working out the wind corrected plot, so no need for the circular slide rule so much loved by the CAA and aviation traditionalists everywhere. The slide rule is not required in any of the FAA

written exams either; they just don't permit anything with a “memory” unless the test supervisor can clear the memory and verify that it has been cleared. This can be somewhat difficult if the test supervisor doesn't know anything about calculators! I don't think there is much prospect of being able to use a PDA in a written exam - unsurprisingly.

The flight plan TAS, for each altitude, comes from the PA28-161 POH, from the “best power” setting, the OAT and the altitude, for 65% power. Given the crude leaning procedure to get what one thinks is 65% power and its corresponding fuel flow, this kind of stuff (common in flying schools everywhere) needs to be done with generous fuel margins!! There isn't the instrumentation in the aircraft to meter fuel accurately. Nor is one going to get the planned TAS. However, there is no point in arguing about any of this; it gets you nowhere. Just do as you are shown. During the check ride, the planned flight is started but isn't completed (it would be much too long).

Test day

The following morning I turned up with a load of weather printouts and the flight plan. Luckily I had a portable inkjet printer; the Canon IP90, and I used it to print out approach plates, from Jeppview, in a familiar format throughout the two weeks. However, this is far from essential as in the USA the free plates are in fact perfectly OK.

I had to come with the right documents for myself: a proof of picture (passport) and a separate proof of address (this was a problem; a UK utility bill would be fine but luckily I had some TSA paperwork showing my address) with neither being a pilot-related document. Plus the medical. All in original, no copies. I also had to retrieve the maintenance documents and the POH from the aircraft, and “prove” to the examiner that the aircraft (his aircraft!) was airworthy. Curiously they store the maintenance records in the boot - a practice which is as far I know banned in Europe because they are likely to be destroyed in a crash. I suppose the maintenance firm has to keep copies for a while. Plus US\$300 in cash for the examiner.

If you are adding your IR rating to an FAA PPL certificate issued under FAR 61.75 (a “piggyback” license issued on the basis of your JAA/UK license) then you must also have a current “Verification of Authenticity of Foreign License” letter from the FAA. You will have needed to get one of these when you got your 61.75 license, but they are only valid for six months. If you don't have a current one you will not be allowed to take your check ride and it's not possible to get one in less than about three weeks so you will have had a wasted journey!

The examiner took one look at the weather data and didn't like it at all. He said “just tell me what the weather is along the route; I am not interested in all these graphs”. Eventually I realised he wanted a very brief

summary like “unlimited visibility, wind 250/15”. It’s a different culture, to be able to work adequately from a telephone briefing. I found it a bit bizarre to hear a description of a warm front somewhere without being able to see a proper weather chart. However I gather real private pilots in the USA do just use the internet. He told me to go away and phone the 1-800-WX-BRIEF weather service. I came back with almost the same winds and temperatures aloft as I had in the GFS data; unsurprising since the US aviation forecasts probably comes from GFS anyway. A slight complication was that there was quite a lot of “weather” in the area (a warm front) and there was no data available for the destination so one had to take a wider view of the area.

The examiner was an old chap who looked really laid back but in reality he was as sharp as they come. Then he came to examine my flight planning. Apart from trivial points, he could not fault it. As he was going through this, he would ask various related questions - just like a tax inspector. He also went through the standard regulatory stuff like required documents on the pilot and in the aircraft, lost comms procedures (picking a point along the route where a radio failure occurs, and asking where you will go from there both laterally and vertically all the way to destination), required aircraft maintenance, etc. He was very thorough. I knew nearly all of it and he did not catch me out on anything of substance. He also explained a lot of stuff, which was good. I understand the official FAA position is that the candidate should learn something from every examination. The oral lasted about two hours and was a good learning experience; not what I would call aggressive, and nothing like that examiner I had for the FAA PPL in the UK a few years previously who spoke such heavily accented English

that I could not understand most of what he said.

The long time of revision, using the ASA printed and computer material, paid off but the most valuable and easiest to absorb stuff was in the form of practice questions from the instructors. Clearly they knew what sort of questions come up regularly. Ground school was about \$40/hour and I had about five hours of it during the two weeks.

The flight test

Then we went to fly. He started off very quiet and no doubt he planned to stay that way. I made various errors in the radio calls; the usual confusion as to who to talk to for real or not for real; this man played it slightly differently from the instructors. So he soon started reminding me of missed radio calls. Some of it (notably the reporting requirements while flying an approach procedure) appeared different from what I had been taught. He got really going when I wasn’t doing things fast enough due to pressure. But in retrospect I did all the actual flying well, with the worst thing being the glide slope going to just half scale (on the safe side) at the 200ft DH, which is OK. This was followed by “Runway visual, land” instruction at the DA so we did a low approach and a missed.

Stuff like a fully developed stall, partial panel, while holding a heading and altitude, I did perfectly, and same with all unusual attitude recoveries. On the return flight, he progressively failed instruments and in the end I was flying a partial panel VOR approach, with just the TC, the compass at the top, and one VOR receiver which had to be rapidly switched (and retuned) between two VORs; one to track and the other for the crosscuts. This verges on the ridiculous and if you can do this you can probably do anything. I did it OK in terms of overall

accuracy but was unable to do much else like radio calls. At one point I took my feet off the rudder pedals and he said if I do that again he will fail me! He made a big thing out of that, saying that it is as bad as taking my hands off the yoke. But then he is an aerobatics instructor. The checkride contained just about everything covered in the training, ending with a partial-panel timed-turns hold, to a VOR approach terminating with a right-hand circle to land.

I suspect that if I had actually messed up badly, e.g. turned the wrong way somewhere, he would have failed me. One can read the IR Practical Test Standards booklet (worth reading) but basically you will fail if you do something where the examiner has to take the controls. You will probably also fail if you make a gross navigation error, or mess up some instrument approach. I doubt they will fail you for occasionally not doing the radio when under pressure. What this implies is that if you can do all the flying and do it safely and reasonably accurately then you should pass.

One is expected to hold altitude to within 100 feet. In turbulence this often cannot be achieved; what they are looking for is an immediate detection of the deviation and a corrective action taken.

The flying was much too intense to enjoy and two flights per day was the maximum I could take. A lot of people go to fly in the USA hoping for a holiday and “picking up an IR” while they are at it; this is not going to be the case! It was readily apparent that the criticism of the FAA IR, widespread in the UK aviation press and the various pilot forums, is mostly rubbish written by people who have never actually done it.

Being under the hood, there was very little to see outside but I quickly established that the whole area was very barren - quite spectacular in places.

P 12 ►

Chandler Municipal Airport, Arizona



“ Being under the hood, there was very little to see outside but I quickly established that the whole area was very barren ”

Getting a FAA IR at Chandler Air Service continued from page 11

The IR check ride also counts as a BFR (biennial flight review) for the FAA PPL so that now runs for two more years also.

On the last couple of days I was tempted to do a flight to Bryce Canyon in Utah – a spectacular place I had been to before by road - but it was 350nm away and this would have been a major trip in a PA28, so I didn't bother.

FAA CPL

On the last day I sat and passed the three-hour Commercial (FAA CPL) written exam. It cost only \$90. In Europe, there are only a few places where one can sit this and they all cost much more. The content of this is mostly very relevant to this type of flight; lots of technical stuff on aircraft performance and plenty of trick questions you have to think about. I plan to have a go at the FAA CPL one day.

Total cost of the training was £2,400. On top of this was the airline flights, 2 weeks' accommodation, and some food. Plus perhaps a week of cumulative UK time spent pushing pieces of paper and hanging around the US Embassy.



Accommodation at Chandler Inn

Would I recommend this school? If you want a hard, thorough but basic IR done at a school which is very straight, honest and makes sure you do it right, then certainly yes. If you want to fly a nice aircraft with a glass cockpit, there are schools that fly those but allow an extra week to learn the avionics and the extra stuff which you will get tested on; however, due to the variations between the different kinds of these relatively advanced avionics, it will be a waste of money unless you fly with similar equipment back home. I would also avoid the summer in Arizona; it gets extremely hot and the thermals will make flying hard.

On reflection, a UK IMC Rated pilot who has had a good instructor

back in the UK, with good IFR currency (probably an aircraft owner) and with good technical knowledge should already be able to do most of what is required, and two weeks of additional training should be enough. He will still find it very hard to work at the required speed though, and (as described above) there are enough differences between the UK and the USA to use up several days' training. Doing 150 hours a year I had more currency than most UK private pilots but I still found it very hard.

It's hard to guess how much work it would have been for a plain PPL with no instrument experience. Probably a good two months and that assumes one has passed the written exam already and knows the theory. The UK IMC Rating is an excellent preparation for the FAA IR because it should give you about 60% of the theory and most of what is involved in actual IFR flight. The IR then involves a significant improvement in one's standard of flying, plus a considerable amount of technical stuff, and this is much harder than one would expect.

Aircraft owners

For aircraft owners, the training intensity in the FAA IR highlights the unfortunate position which a European pilot finds himself in. It would be highly desirable to do it all in one's own aircraft. Currency on type is what it's all about and this is high quality training which should be fully utilised. It used to be possible but due to the protectionist practices that seem to underpin much of European GA legislation this option is now gone - short of flying your N-reg aircraft to the USA, or finding an identical aircraft out there.

The number of pilots willing to go through the considerable hassle of doing the FAA PPL/IR, placing the aircraft on the N register, etc, powerfully highlights how poorly conceived the European pilot licensing regime really is.

The IR was the hardest thing, flying-wise, that I have ever done - by far. Finishing it was a huge relief. Now, for the first time in two years, I can pick up a normal book or a magazine and read it, without feeling guilty that I should really be reading the FAR/ AIM or the ASA training guide.

Was it worth doing? The FAA IR

route avoids the huge ground study process of the JAA IR but introduces several additional complications, the chief ones being the need to find time to visit the USA and the need to arrange access to an N-registered aircraft to get the IFR privileges. For me, with good access to a suitable aircraft, the clear answer is YES. The FAA IR process is a lot easier to slot into one's life than the large volume of JAA ground material which, for most people with a "life", will need a very long period of dedicated study. However, for someone who needs full IFR privileges in a European-registration aircraft, for example someone renting from flying clubs, the answer will be very different.

Flying in Europe

How different is flying in Europe? In all flight training, there are gaps between the training and what a lone pilot really needs to know to go places. In PPL training, this knowledge gap is so big it is laughable and most PPLs feel quite unable to do anything useful. When it comes to the IR, there are significant gaps on the operational side of things; for example, the development of a route acceptable to Eurocontrol ranges from nontrivial to very difficult and this isn't taught in any IR (FAA or JAA). The flying itself is not a problem at all; much of European IFR is an RNAV point to point navigation exercise with a BRNAV GPS which more or less ignores anything on the ground, terminating with an instrument approach. This, or the more complicated variants where e.g. a SID/STAR has to be flown using a series of nav aids, isn't going to cause any problems to an FAA IR holder; in fact a properly trained IMC Rated pilot, sitting in a well equipped IFR aircraft, could do it all.

Many small details are different of course: the radio, and many little procedural items. It would be highly advisable for any new IR holder (FAA or JAA) to fly with an experienced pilot before venturing out on their own around Europe.

The real long-term challenge for an IR holder is currency. This requires good access to an aircraft equipped to a high standard, and an appropriate budget.



Automatic Dependent Surveillance-Broadcast (ADS-B)

What is ADS-B?

Simply put, ADS-B is the future of air traffic control. Instead of using radar data to keep aircraft at safe distances from one another, in the future, signals from Global Positioning Satellites will provide air traffic controllers and pilots with much more accurate information that will help keep aircraft safely separated in the sky and on runways.

Eventually, with ADS-B, some of the responsibility for keeping safe distances between aircraft will shift from air traffic controllers on the ground to pilots who will have displays in the cockpits pinpointing all the air traffic around them, along with local weather displays.

How does ADS-B work?

ADS-B works by having aircraft transponders receive GPS signals and use them to determine the aircraft's precise location in the sky.

The system converts that position into a unique digital code and combines it with other data from the aircraft's flight monitoring system

- such as the type of aircraft, its speed, its flight number, and whether it is turning, climbing, or descending.

The code containing all of this data is automatically broadcast from the aircraft's transponder once a second using the 1090 Mode S Extended Squitter for commercial planes and the 978 MHz Universal Access Transceiver for general aviation aircraft.

Aircraft equipped to receive the data and ADS-B ground stations up to 200 miles away receive these broadcasts. ADS-B ground stations add radar-based targets for non-ADS-B-equipped aircraft to the mix and send the information back up to all equipped aircraft. This function is called Traffic Information Service-Broadcast (TIS-B). ADS-B ground stations also send aircraft information from the national weather service and flight information, such as temporary flight restrictions. This is called Flight Information Service-Broadcast (FIS-B).

Pilots see this information in their cockpit traffic display screens.

Air traffic controllers will see the information on displays they are already using, so little additional training would be needed. ADS-B signals are transmitted once per second, providing a more accurate tracking system for pilots and controllers.

What are the ADS-B benefits?

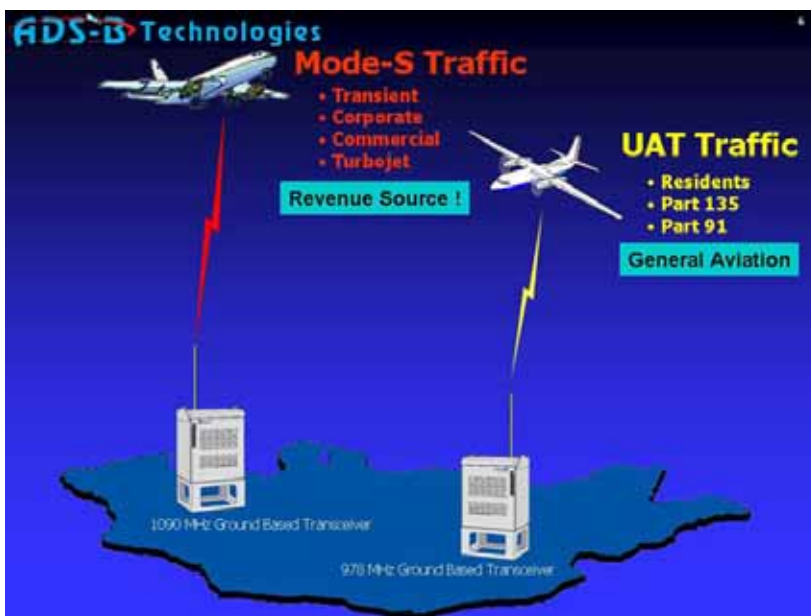
When properly equipped with ADS-B, both pilots and controllers will, for the first time, see the same real-time displays of air traffic. Pilots will have much better situational awareness because they will know where their own aircraft are with greater accuracy, and their displays will show them all the aircraft in the air around them. Pilots will be able to maintain safe separation from other aircraft with fewer instructions from ground-based controllers. At night and in poor visual conditions, pilots will also be able to see where they are in relation to the ground using on-board avionics and terrain maps.

In addition to improved safety in the sky, ADS-B will help reduce the risk of runway incursions. Both pilots and controllers will see the precise location on runway maps of each aircraft and even equipped ground vehicles, along with data that shows where they are moving. These displays are clear and accurate, even at night or during heavy rainfall.

ADS-B will also increase capacity, because the more accurate tracking means aircraft will be able to fly safely and more predictably with less distance between them. And, because ADS-B accuracy also means better predictability, air traffic controllers will be better able to manage the air traffic arriving and departing from congested airports, resulting in even more gains in capacity.

With its combined increases in safety, efficiency and capacity, and

“
ADS-B will increase capacity because with more accurate tracking aircraft will be able to fly safely with less distance between them
”



Mode-S v UAT

“ With ADS-B the FAA plans to let vendors install and maintain the equipment just as the agency today buys telcom services ”

reductions in cost, ADS-B is critical to the agency's Next-Generation Air Transportation System plan for meeting the nation's predicted tripling of demand in coming years.

Why adopt ADS-B?

Although radar technology has advanced, it is essentially a product of 1940s World War II technology. Radar occasionally has problems discriminating airplanes from migratory birds and rain "clutter." Secondary surveillance systems can determine what objects are because they interrogate transponders; however, both primary and secondary radars are very large structures that are expensive to deploy, need lots of maintenance, and require the agency to lease real estate to situate them.

ADS-B, on the other hand, receives data directly from the transmitters, rather than passively scanning for input like radars, so does not have a problem with clutter. ADS-B ground stations are inexpensive compared to radar, and are the size of mini refrigerators that essentially can go anywhere, so they minimize the required real estate. In addition, ADS-B updates once a second and locates aircraft with much more precision.

ADS-B also provides greater coverage, since ADS-B ground stations are so much easier to place than radar. Remote areas where there is no radar can now have precise surveillance coverage.

TIS-B traffic display



What has been done to date?

The FAA established the Capstone and Safe Flight 21 programs as joint government/industry initiatives to demonstrate the capabilities of advanced surveillance systems and air traffic procedures using ADS-B in a real-world environment.

To get preliminary assessments of the costs, benefits, operational safety and security, and architectural



TIS-B map overlay

requirements for ADS-B, the FAA conducted a series of operational evaluations in Alaska and the Ohio Valley. RTCA (a scientific advisory group that assists the FAA on technical issues) developed the initial avionics standards for the new system, and the FAA conducted three joint government/industry meetings in 2001 to gather user and industry feedback.

Using the results of these evaluations, the FAA conducted a broad assessment of ADS-B technical link performance from 1999 through 2001 that resulted in the FAA's ADS-B "link decision" in June 2002. In summary, the link decision selected two ADS-B frequencies for use in the national airspace system — the 1090 Extended Squitter (1090 ES) and Universal Access Transceiver (UAT). The 1090 ES will be used by commercial aircraft, while UAT was selected for general aviation and vehicles. Revisions and development of additional avionics standards by RTCA followed in 2003 and 2004.

On September 9, 2005, the FAA officially committed to

moving toward establishing ADS-B as the basis for air traffic control in the future. Moving to ADS-B will allow the agency to eventually begin decommissioning some of the current infrastructure of ground radars in favour of a system that uses much more precise satellite data and provides greater benefit to everyone who uses the national airspace system.

What are the next steps?

The FAA reserved \$80 million for fiscal year 2007 to begin the initial implementation of ADS-B in the national airspace system. This includes continuing to support the ADS-B infrastructure already installed along the East Coast and integrating ADS-B surveillance into the FAA's current air traffic control systems.

With ADS-B, the FAA plans to let vendors install and maintain the equipment, and to lease services from them, just as the agency today buys telcom services from telecommunications companies. This will both reduce costs and give the agency greater flexibility. Once the ADS-B infrastructure is in place, vendors will likely use the system's capabilities to offer even more services to pilots and airlines.

The agency is also looking at the possibility of rulemaking that would mandate the avionics necessary for implementing ADS-B across the national airspace system.

The full evolution of ADS-B would take up to twenty years, taken in manageable segments of equipment and ground-station installation, with some legacy radars maintained throughout to provide a back-up system. However, benefits in improved safety and capacity, and better efficiency for airlines, would accrue with each step of the implementation.

The agency plans a meeting of its Joint Resources Council in June of this year to determine more exactly the near-term steps in beginning the transition to ADS-B.

(Compiled by David Bruford from an FAA report, with photos courtesy ADS-B Technologies, LLC, www.ads-b.com)



Thanks

I am very grateful for the work that was done in relation to airways charges for aircraft below 2 tonnes. These days I fly a Twin Comanche. Please pass on my thanks to the appropriate individuals. Warm regards,
Trevor Laundy,
 MEMBER 618

Aviation (Il)logic

My tachometer is going mad. It has a tach generator not a mechanical cable so it could be the generator or less likely the indicator. Since doing anything will disable the aircraft for some time I decide to gamble on replacing the tach generator. This is a fairly basic bit of kit about the size of a matchbox which translates rotation into an electrical signal. Raytheon (Beech) have them in stock new for \$6000 (gasp) or offer a repair for \$425. An email elicits the response: "Yes, this is an exchange service but the earliest available date is next year."

A fair bit of searching on the web and in Trade-a-Plane produces a US Repair Station which specialises in rebuilding obscure electrical bits. They respond to my email by return and they can supply. New is \$1000 plus \$200 core deposit. Overhaul is \$1250 plus \$1200 core. Their sales guy says no he cannot understand the logic either. There is a further twist. They can supply an export certificate 8130-3 for an extra \$75 but cannot guarantee to supply a US form 8130 although they can demonstrate traceability back to Raytheon. In theory then this replacement is legal on a G reg aircraft but not on an N reg aircraft (mine is N reg).

I ordered a new unit with whatever paperwork they can provide. My guess (and it is only a guess) is that this is a batch of surplus stock. It is perfectly legitimate but with less than perfect records. In order to get stuff export certified they have an independent guy with a special FAA authorization come in and issue the form. His rules probably don't say that he needs to see the 8130 just that he needs to assure himself of the traceability of the item back to an approved source. Why Raytheon price some of their stock at such ridiculous levels while other items are reasonable (well 'aviation reasonable') is completely beyond me.

If anyone has a serious spares problem drop me an email and I will try to help. However this is quite a time consuming process and I think it would be reasonable to expect a 'voluntary' contribution to be made to the group funds proportionate to any savings made.

Jim Thorpe jim@tredunnock.com
 MEMBER 326

Descent to initial approach level

I came across the following, initiated by IFALPA (International Federation of Air Line Pilots' Associations). Nobody I have spoken too seems to have heard of it so I thought it would be of interest to your members.

"When vectoring a flight for approach where a pilot-interpreted approach aid will be used, air traffic control (ATC) should issue the approach clearance prior to the aircraft reports established. At that time the aircraft may be at a level higher than the initial approach altitude. This has occasionally lead to a confusing situation in the cockpit in that pilots have difficulty to determine whether they should maintain the last assigned altitude until established on final approach track, or if they were allowed to descend to the initial approach altitude.

PANS-ATM Procedures

The initial and intermediate approach phases of an approach executed under the direction of a radar controller comprise those parts of the approach from the time radar vectoring is initiated for the purpose of positioning the aircraft for final approach, until the aircraft is on final approach and established on the final approach path of a pilot-interpreted aid (PANS-ATM 8.9.3.5).

Radar vectoring will normally terminate at the time the aircraft leaves the last assigned heading to intercept the final approach track (PANS-ATM 8.9.4.1)

The radar controller is responsible for terrain clearance until the aircraft resumes own navigation (PANS-ATM 8.6.5.2).

Conclusion

Based on the above, and in order for the controller to be able to retain responsibility for terrain clearance while vectoring aircraft for final approach, pilots should either maintain the last assigned level until radar vectoring is terminated (which normally occurs at the time the aircraft leaves the last assigned heading to intercept the final approach track), or ask for an explicit clearance to descend.

Procedures to mitigate against the problem

Some States require the controller to refrain from issuing the approach clearance until the pilot reports established, even though PANS-ATM advises otherwise.

Some States require the controller to restate the altitude to maintain until established."

Regards

Raif Burvodd

And a riposte from our Editorial Office

Ed says...I thought that there was some contentious info here so I passed it by Ole Henriksen, a doyen of such matters. I was glad that I did, as he advised:

Thanks for this. Something in it is quite confusing to me: In my experience, a pilot will not report "established" (on the final approach course inbound) UNLESS CLEARED for the approach, which makes the first statement self evident, and the latter a nonsense. The reason for this is that you cannot establish (in practise change course to intercept) unless cleared to do so.

A vector for the intercept does NOT imply a clearance to deviate from that vector, but sometimes controllers issue ambiguous clearances like "Fly heading 240 for the 27 ILS". It's anybody's guess whether that's just helpful positional information or whether it implies that you are also cleared to intercept and fly the ILS. What the pilot should do in a situation like this is ASK. For instance: "Confirm cleared for the approach when established". What the controller SHOULD have said is: "Fly heading 240 to intercept, cleared for the 27 ILS" or something similarly unambiguous. When vectors are terminated with a "cleared for the approach" without further restrictions, the pilot is released from any previously issued vectors or altitudes and can (should) follow the published approach profile from the present position to the go-around point. An approach clearance does NOT imply a landing clearance, so this must be obtained separately (usually from the Tower frequency) before proceeding past the go around point.

However, deviations from the published approach procedure are often issued by ATC for traffic separation purposes. The most common in my experience is to restrict descent until later than normal in the procedure in order to maintain separation from other aircraft (such as a VFR circuit or departing traffic).

Cheers,

Ole Henriksen,
 MEMBER 54





By
John Pickett

Better regulation of GA

The recently EASA published Advance Notice of Proposed Amendment (A-NPA) No 14-2006 provides for “A concept for better regulation in General Aviation”. Following a perusal of the document on the EASA website, all 48 pages were downloaded.

A document for the insomniac maybe?

However, by page 11 it was realized that the not so inspiringly named MDM.032 Working Group had performed a Herculean task and grasped the European GA situation accurately, precisely and speedily. The A-NPA is a major proposal that, if adopted, will have a considerable effect on Europe and the GA industry.

While space does not allow detailed comment on the entire document the major proposals are extracted from the A-NPA.

⊖ **Background.** There are approximately 300,000 private pilots and 80,000 aircraft in Europe. However, there is a continuous decline in the traditional European GA sector that is not mirrored in the USA. There are notable exceptions to this decline in some Member States. The Czech Republic and France are showing a vibrant developing activity in the microlight industry, which is subject to an extremely simplified regulatory regime. The same applies to Germany where gliding activity is increasing. Again the regulatory regime departs significantly from the full brunt of JAA rules. It is therefore felt that there is a correlation between the heaviness of the rules, or their implementation, and the difficulties faced by general aviation. There are in Europe about 35 manufacturers of GA aeroplanes, gliders and balloons. Small market numbers face most manufacturers selling their products in Europe. Investment risks are high for developing new products. There are substantial front-end costs that include a high percentage for regulatory compliance that have to be recovered over low volumes. In 2006 approximately 75% of the “Light Sport Aircraft” type sold in the USA are produced in Europe. Unfortunately, these aircraft cannot be flown in the EU system. The existing JAR-FCL system, particularly that part concerning private pilot licensing, is too demanding.

⊖ **Concept.** The concept includes four components addressing airworthiness, continuing airworthiness, air operations and pilot licensing.

⊖ **Airworthiness.** EASA proposes that the current certification process should be retained for all aircraft of 2,000kg or more (MTOM) and simplification of certification for aircraft below 2,000kg MTOM.

⊖ **Continuing Airworthiness.** EASA concluded that the best option is to continue with the rule making tasks already initiated. However, it is proposed that further work is undertaken concerning pilot owner maintenance, assessment bodies, proportionate rules according to mass and kind of aircraft, etc.

⊖ **Air Operations.** EASA is proposing a set of “Light” (aircraft) implementing rules and an acceptable means of compliance (AMC) must be developed to ease the implementation of the Essential Requirements for air operations.

⊖ **Pilot licensing.** At last Europe is responding to the demands of the aviation industry. MDM.032, the EASA committee, is working hard on the future “Recreational Private Pilots Licence” (RPPL), (including a name change.) The RPPL will have various classes such as glider, ultralight, single engine piston aeroplane,

balloon, etc. Ratings such as a Night qualification and a “**simplified Instrument Rating**” can be combined. It will be a “sub-ICAO licence”. The intention is for the licence to be competency based with skill forming an essential part of the qualification. Having acquired competencies the holder may advance to another class. For example a microlight pilot achieving a RPPL may advance to a single engine piston class and later to a conventional ICAO PPL. The training will be skill and knowledge based covering the full scope of aircraft other than complex motor powered aircraft. This will include the simplified Instrument Rating. There would, of course, be no restrictions on access to airspace and airports built into the licensing rule. A bridge will be created to the standard FCL-PPL.

⊖ **Weight limit.** The European Commission proposed that the upper aircraft weight limit should be 5,700kg. However, it now appears that the upper weight limit will be 2,000kg. Jacob Pedersen is quoted as saying “The definition of non-complex looks like ending up as 2,000kg and six or fewer seats, but it may include a turboprop”. This delineator of 2,000kg is in line with that used in the Eurocharges legislation.

⊖ **Medical requirements for pilot licensing.** It is proposed that the requirements should be based upon risk assessment. General Practitioners should be allowed to issue a medical certificate after an assessment following a self-declaration signed by the pilot.

The above précis only scratches the surface of the A-NPA 14-2006. The proposals appear to be a genuine attempt to revitalize the European General Aviation Industry by simplifying and reducing regulation. The proposal relies on private organizations and companies becoming assessment bodies. These bodies will take over the certification and licensing tasks from the national and regulatory authorities.

The complete A-NPA consultation document can be downloaded from the EASA website, together with the comment form (www.easa.europa.eu). Comments should be received by EASA before the 16th October 2006.

Ironically, the long awaited strategic review of UK GA is published. One of the areas addressed by the review was the increase in the number of foreign registered GA aircraft operating in the UK. The numbers having increased from 100 in 1987 to 889 in 2005. Over 72% of these aircraft were registered in the USA. Pilots holding an FAA Instrument rating operate a lot of the aircraft. The FAA Instrument Rating being the only practical option to a JAA PPL/IR. Which is, as we are all aware, unnecessarily over complicated and difficult to achieve.

Security clearance to fly?

In the USA several States require background checks to be conducted on student pilots and pilots. AOPA USA is stressing that “a more logical approach to addressing aviation security and airman requirements should be left to the federal government to implement”. It is rumoured that Germany is considering background checks on pilots. Surely this should be left to the EU to consider rather than individual member states?

Jeppesen subscriptions

Those of us who use Jeppesen Flight Manuals, Jeppview, FliteDeck, FliteStar and their internet Flight Planner will be gratified to know that the Jeppesen Weather will be available at a much reduced subscription in the future. The subscription will be 50 Euros per year. Soon to be included for flight planning purposes will be NEXRAD forecasts charts, icing and turbulence charts. These charts will only be available to Jeppesen Weather subscribers. Jeppesen has supported General Aviation for more than seventy years and the coverage of European airfields is second to none.



JAA approvals

The United Kingdom Civil Aviation Authority administers on behalf of the JAA Approvals of various functions and equipment. The CAA publishes the charges annually in the "Scheme of Charges". It is reported that the UK CAA is required to make a return on capital of 6%. They appear to have developed a new "wheeze" to help them achieve the return required.

A recent example is that the CAA issued notification of an approval expiring on the 30th November 2006. If the owner wished that the approval be renewed then an application form and the money must be received by the 15th of August 2006. Therefore the CAA demanded full settlement some three and a half months in advance of conducting the Approval inspection. The inspection is to take place in the UK at a major UK airport where there is a CAA office! Very good business! It is wondered if the CAA is in the short-term money market? It is no wonder that this activity contributes to the continuing export of flight training to the USA.

JAA instrument rating

IAOPA-Europe advise that the JAA is setting up a working group to undertake a full review of the Instrument Rating (Aeroplane). Apparently, the JAA has recognized that the current requirements for the JAA Instrument Rating are "over the top", and in practice unobtainable for a private pilot. IAOPA go on to say that they recently pointed out to the JAA that the current situation is highly undesirable, since virtually no Instrument Ratings are issued to holders of PPL licences. Clearly, this is not in the interests of flight safety. Accident statistics prove that a large majority of GA accidents in Europe are weather related, and therefore, it follows that a private pilot holding an instrument rating will always be a safer pilot.

EGNOS



The EGNOS (European Geostationary Navigation Overlay Service) System Test Bed (ESTB) is being closed, after six years, as its task is complete. ESTB was a much-reduced version of EGNOS that used experimental monitoring and processing stations across Europe. EGNOS is now using its operational network for the provision of GPS augmentation across Europe. Raw GPS data can give a position accuracy of 10-15 metres. EGNOS augmentation improves the accuracy to approximately two metres.

Galileo – Cardiff

Cardiff in South Wales, UK is putting itself forward as the UK candidate to host the Galileo Supervisory Authority (GSA). GSA is the EU agency that will control the development of the Galileo system. The administration centre is in Toulouse, France and the operations centre in London, UK. The location of the GSA will be the nerve centre of the whole Galileo system. It has been called "the NASA of 21st century navigation".



GPS approaches trial

Trial approaches are being conducted at six airfields in the UK. The UK CAA has admitted that the number of approaches flown is disappointing low. This is not surprising as only UK licensed pilots in UK registered aeroplanes can participate in the trials!

Members are urged to take part in the trials. Pilots should submit reports after flying the approaches and we are assured that these reports will not be seen by the CAA but will be managed independently by Leeds University and the Imperial College, London. More at <https://www.gpstrials.leeds.ac.uk/>



Sardinia & GA



AOPA-Italy is advising private pilots not to fly to Sardinia. The Sardinian Regional Government has imposed a "luxury tax" on private aircraft entering the country. The smallest four seat aircraft must pay a minimum of 150 Euros on top of the landing and handling charges! Further evidence that authorities think of General Aviation as the preserve of the privileged and wealthy!



Joint review teams publish two reports on the UK general aviation industry

Two recently published reports provide a comprehensive picture of the current state of the UK's General Aviation (GA) sector and make a series of recommendations aimed at the Civil Aviation Authority (CAA), Government and the GA sector itself.

The reports were produced by two review teams made up of representatives from GA, the CAA and Government. The Strategic Review looked at the overarching context within which GA operates and considered the main economic, commercial and policy developments in the sector, whilst the Regulatory Review focused on the detail of CAA safety regulation. The process of completing these reviews has already improved mutual understanding between all the contributing parties of the respective roles of GA, Government and the CAA and the interface between GA and the commercial air transport sector. The reviews highlighted the diverse range of GA activities ranging from personal recreation to corporate jets.

Strategic Review

Among the findings of the Strategic Review were:

- ⊖ UK GA's economic contribution is estimated at around £1.4bn, the sector employs around 11,000 people, and on this basis represents around 8% of the economic contribution of UK commercial aviation
- ⊖ Many areas of GA are growing strongly and there is no evidence of serious decline, although access to key infrastructure has in some areas become more difficult in recent years
- ⊖ UK Government should consider making a statement on the value of maintaining a network of GA airfields
- ⊖ There is a need for a more effective dialogue going forward between GA, CAA and Government and all parties need to work better together to influence legislative changes emanating from Europe
- ⊖ GA needs to co-ordinate and present itself better.

Regulatory Review

Among the findings of the Regulatory Review were:

- ⊖ The membership of the CAA's General Aviation Consultative Committee should be expanded to include, inter alia, more GA groups

- ⊖ The CAA should work with GA to improve safety education amongst the GA community
- ⊖ A formal 'issues log' has been developed to consider GA concerns over regulation
- ⊖ Not enough engineers seem to be entering the market.

Implications for General Aviation

CAA Chairman, Sir Roy McNulty, instigated the reviews in June 2005. Commenting on the findings he said: "These reviews bring much greater clarity on the role and health of general aviation in the UK and should result in a clearer appreciation of the significance of the sector by those involved in policy decisions in Government, in the CAA and in Europe. Together, the reviews contain much to demonstrate that GA is an important business and leisure activity, as well as being an important source of skills and awareness for the aviation industry as a whole".

The CAA's Alex Plant, who led the Strategic Review, added: "Together, these reviews provide an unprecedented source of information about the GA sector and its role in the wider economy. Both reviews had a significant input from the GA members and have already resulted in a fundamental re-energising of the relationship between GA and the CAA and Government. This needs to be built upon as future challenges present themselves."

Work on the recommendations resulting from the reviews continues, as David Chapman from the CAA, who led the Regulatory Review, explained: "The reviews have provided a better understanding of the roles different organisations play in the UK's GA sector and will provide a better evidence base for future regulatory work. However, if we are to move the recommendations forward, it is essential that GA, the CAA and the Government continue to work together effectively."

The CAA Board has pledged to take forward the CAA's follow-up actions and the CAA is organising a GA conference, planned for November 21, to allow discussion of some of the key issues involving the sector.

The final reports and recommendations were unanimously agreed by all the members of the respective review teams. Both reports are available on the CAA website at www.caa.co.uk/ga in the 'What's new' section.

Who's who producing the report?

Chairman:

- ⊖ *Alex Plant* – CAA Economic Regulation Group, Economic Policy and International Aviation.

CAA:

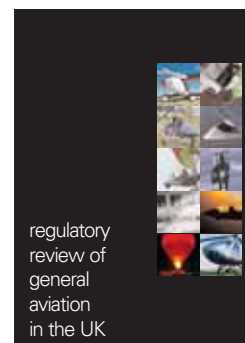
- ⊖ *David Chapman* – Safety Regulation Group, Operating Standards Division
- ⊖ *John Hills* – Safety Regulation Group, General Aviation Department
- ⊖ *Alex Hartland* – Safety Regulation Group, Flight Operations Policy
- ⊖ *Graham Forbes* – Safety Regulation Group, Personnel Licensing
- ⊖ *Simon Wragg* – Directorate of Airspace Policy (also representing MoD)
- ⊖ *Mark Smailes* – Directorate of Airspace Policy
- ⊖ *David Beaven* – Safety Regulation Group, General Aviation Department.

Government:

- ⊖ *Ann Godfrey* – Department for Transport, Air Traffic Management (Ministry of Defence interests are represented by Gp Cpt Simon Wragg, CAA DAP).

General Aviation:

- ⊖ *Roger Dunn* – General Aviation Safety Council (GASCo), PPL/IR Europe and GAA
- ⊖ *Charles Henry* – General Aviation Awareness Council (GAAC)
- ⊖ *Roger Hopkinson* – Popular Flying Association and GAA
- ⊖ *Jeremy James* – Helicopter Club of Great Britain and GAA
- ⊖ *David Roberts* – British Gliding Association, Royal Aero Club of the UK, Europe Air Sports and GAA
- ⊖ *Martin Robinson* – Aircraft Owners and Pilots Association
- ⊖ *Mark Wilson* – British Business and General Aviation Association.



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PPL/IR Europe is open to any pilot interested in the operation of light aircraft under IFR in Europe. The annual subscription is GBP45 and more details are available from the Membership Secretary.

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For reports on meetings, conferences and other activities attended in the last 12 months by members of the Executive on behalf of PPL/IR Europe members please go to <http://www.pplir.org> – Activities

The life and loves of a serial composite lover

continued from page 3

Flight test

It was a thermally and ragged IMC type of day, but OE-FAB drove through the clouds with much greater stability than my DA40. Henrik failed an engine (well above blue line) and it didn't seem that difficult to control it. We flew an ILS into EGCN with remarkable ease given I hadn't flown for six months. I was sold; hook, line and sinker!

The fact that I had just started my own business and not yet even invoiced my first client and with no savings or other funds meant I had the minor detail of coming up with £250,000 from nowhere; details, details.

Moving on to April 2006, I decide to pre-empt the imminent arrival of my baby G-DJET serial number 122 by getting my MEP rating at one of the ATPL flight training schools that ran DA42s. Big mistake! The big flight schools are glorified sausage machines, churning young ATPL pilots out over a year or so. Whether you fly one week or next is not a big deal, averaged out over a year it all works out ok in the end. For a self employed business person where time is money this was a huge problem. The MEP course required 8 hours of flying. I was rusty and badly out of practice. I naively figured that if I spent a week there I could do the course, renew my IMC rating and maybe do some night work too!

Training

Arriving 8:30 am on the Monday and leaving Friday 5:30 pm at the end of the week meant I enjoyed three hours of flying of which a third was taxiing and listening to ATIS at the busy airport where they were based. A further four days of time were spent relatively futilely trying to be accommodated amongst other students who were doing CPL/IR test and retests whilst we struggled with unserviceable aircraft, overworked instructors and poor weather.

Meanwhile I was struggling; the regime, the syllabus, the flight school's interpretation of the syllabus, my lack of practice and the bad habits that 600 hours of flying your own single engined aircraft brings, all compounded to create deep frustration and a degree of anxiety with the whole process. If I could have walked away at this stage I would have!

But as the Zen Buddhists would know, things balance themselves out in the end. The turning point was the ferry flight back with an ex-Austrian Airline's training captain. We flew G-DJET from Diamond's factory just outside Vienna (LOAN) via Baden Baden (EDSB) back to Retford (EGNE). The training captain loaded the GPS and did the radios while I flew the plane. The five hour trip



Garmin's G1000 is standard fit in the DA42



allowed me to settle in and become at one with the plane. This first trip also highlighted the key differences between my previous flying and the new world.

TKS anti-ice

Cruising routinely at 10,000 feet with known icing capability places you well above the 'puddle hoppers' but well below the 'big boys'. The psychological comfort that the aircraft provides is profound and reassuring through its collective array of features and capabilities. Having two engines in the cruise either of which can keep you at 10,000 feet under ISA conditions is great news when crossing hills, wandering across the North Sea, especially in winter or manoeuvring low over built up areas. Having TKS anti-ice is pretty good too, although at £6 per litre and with the ability to use 30 litres in 90 minutes it can work out pretty expensive! Being anti-ice you need to switch it on before you pick up ice, fortunately the main air cooler intake picks ice up first which is a good visual indicator of what's happening. The stormscope brings comfort in avoiding the embedded CBs too.

Following on from G-DJET's arrival I swiftly completed my MEP training at Triple A Flying at Humberside (EGNJ) with the excellent if picky Mike Briggs. On my final pre test check ride I enjoyed the dubious privilege of three engine failures, two engine fires, one heart attack, one loss of flaps, one failure of the gear, two electrical fires, fortunately all simulated. It made the final check ride with the CAA examiner a pleasant walk in the park in comparison.

Since then I have flown up to Mull in Scotland for lunch, trundled around the south coast of Britain and flown to Denmark and Sweden.

The G1000 that proved so problematical to learn is a joy to fly with, especially under hard IFR conditions. The ability to throw the gear out at 195 kt and move the throttles to effectively negative thrust means that descents can be anywhere from nice 300 feet per minute cruise descents under the control of the excellent (in this plane) Honeywell KAP140 autopilot to screaming Stuka type 6,000 feet per minute ear drum popper specials!

So yes I'm in love, like most partners it isn't perfect but the good bits far out weigh

the disappointments. No matter what they say there is a certain cachet to flying this class of plane. Speeding down the ILS in Stockholm, out pacing a 737 on finals, speaking to London Military for the first time (at 10,000), air traffic control moving a jet up a flight level to accommodate you at FL100; a combination of polite radio manner and the DA42 gets you accepted everywhere!

Peter Bondar creates and manages small high tech start-ups for his own and other people's benefit.

Currently handling a portfolio of six different companies ranging from Internet Technology companies through to setting up Air Taxi and Fractional ownership schemes, all based around the DA42; Peter can be contacted at peter@flying-doctors.com

