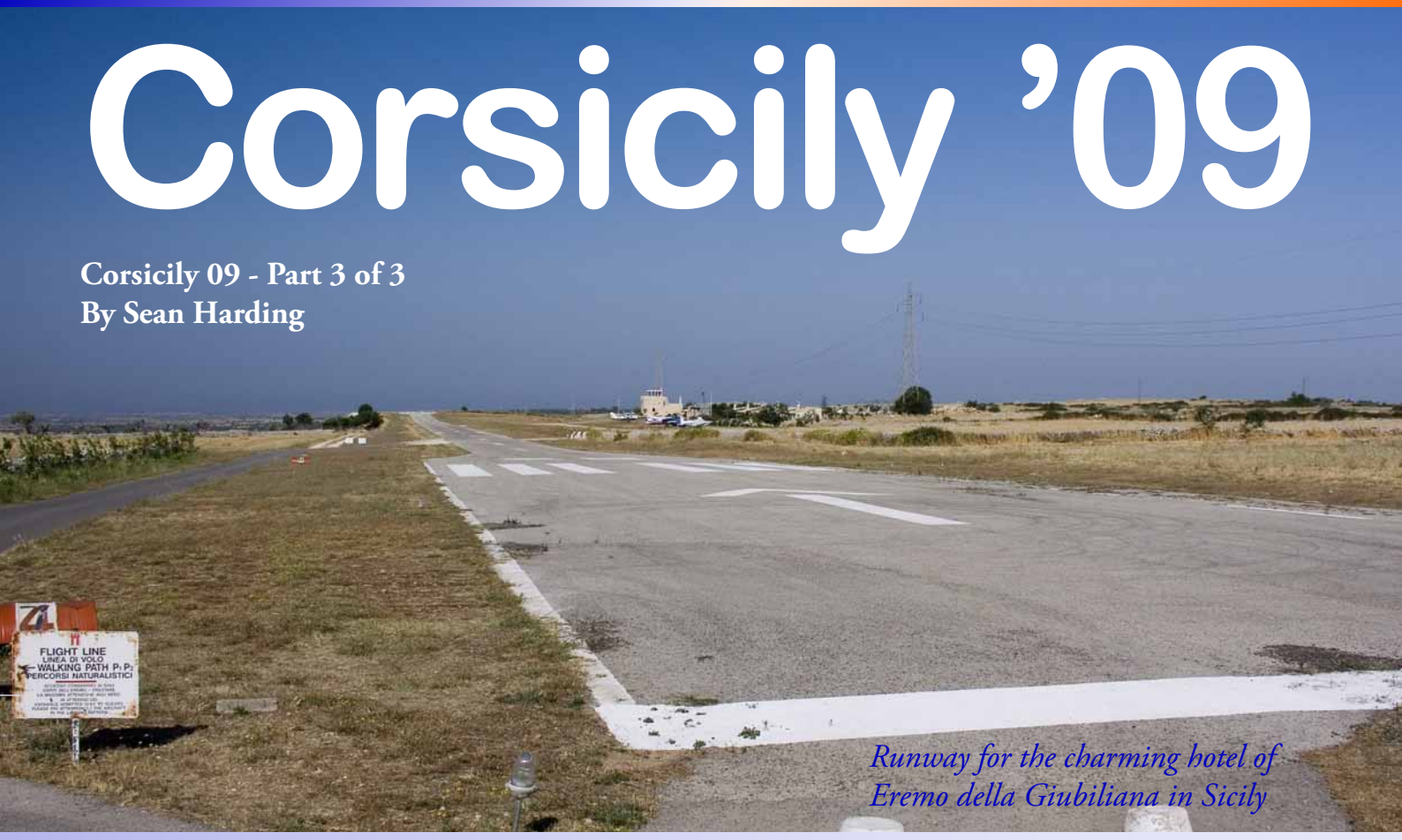
Instrument Pilot

The *PPL/IR Europe* Magazine | No. 80 | July-August 2010

Corsicily '09

Corsicily 09 - Part 3 of 3
By Sean Harding



Runway for the charming hotel of Eremo della Giubiliana in Sicily

CONTENTS

PPL/IR EUROPE

Palermo - Ragusa (The battle of the Eremo)

From the plains of Palermo to the sublime charms off Ragusa, but the dragon's den of the Eremo airstrip has to be passed first!

SID PAL LIBRO DCT RAGUSA

Whilst this is an inefficient route, it had the benefit of being high above the weather and allowing us to believe (mistakenly) that we would be able to see Mount Etna. Unfortunately the visibility turned out to be too poor. Our departure from Palermo was easy, and the SID truncated, allowing me to climb and head south quickly. Interestingly, I have never been allowed to do a full SID as yet - they have all been cut short. The flight was flown as filed, and occasionally I was asked to confirm my destination. I assume they don't get a lot of IFR traffic into Ragusa. When descending out of controlled airspace, the controller was very professional and requested that I cancel IFR. I asked to remain IFR as long as possible since the visibility was poor, and they were happy to do this to the limit of their radar. I eventually cancelled IFR and changed to Ragusa Radio with about 15nm to run. My fellow aviator (just the one at this stage as the other pilot was now on board my aircraft for convenience), had had difficulty planning a VFR route because of the complex military airspace and prevailing cloud bases. Eventually he found a straight forward solution and arrived there at the same time as me.

We had taken the forms for Eremo from their website, and completed them before leaving the UK. Whilst in Cannes a few days previously, we had phoned to confirm that we were coming and to obtain the flight briefing. This briefing is essentially a '*Don't ever, ever, ever do a touch and go*'. The airstrip manager spent much of his time scaring us as to how important it is not to do this. A Mooney pilot had tried P 19 ▶

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*For reports on meetings, conferences and other activities attended in the last 12 months by directors and members of the executive on behalf of **PPL/IR Europe** members, see www.pplir.org – **Lobbying***

Notes for Members

The CAA needs your help

The CAA has launched the Airspace and Safety Initiative pilot project by QinetiQ to study the use of Class G airspace. It is in our interests for the data to be as valid as possible. Accordingly we encourage members to participate at: www.surveymonkey.com/s/G5Z9BNB.

You will need your log book in front of and it takes about 15 minutes to complete.

Aero Expo

Our participation at this years ***Aero Expo*** was again a great success, with a bustling ***PPL/IR Europe*** stand and a series of well attended and interesting seminars. We hope for a fuller write up in the next edition. In the meantime our thanks to all who put so much effort to organise and deliver this event. ***Aero Expo*** is one of our few opportunities to reach a broader public and we hope to make our participation an annual event.

AGM

Volcanic ash seemed to have helped rather than hindered our AGM back in April at Cambridge as Stansted became a no fly zone for anything other than light aircraft. At any rate, a good attendance was rewarded with excellent inputs on ditching survival equipment, the design of instrument approach procedures and flying GPS approaches. We hope to run an article on ditching training in the next edition.

A word of introduction from your new editor

By Stephen Niechcial

With this edition of ***Instrument Pilot*** I am pleased to be taking over the editorship of the magazine from David Earle. David is moving onto another job on the exec, that of representing ***PPL/IR Europe*** at some of the myriad aviation decision making groups referred to by Paul Draper elsewhere in this edition. I am sure you will all want to join with me in thanking him for a doing a fantastic job over his past two years as editor. Under his skilful tutelage the magazine has continued to grow in both depth and breadth. David succeeded in maintaining a continuous flow of relevant, high quality articles from his contributors, and as our shop front to the aviation world, the magazine reflects very well our specialist areas of interest and the expertise we have in them.

'If it ain't broke, don't fix it' as they say. I certainly currently see no need for any radical changes in either style or content. The magazine's current focus on technical aspects of flying light aircraft under IFR, and attending to the many potential legislative and other changes that could impact on us seem to be the main interests of our membership. However, in discussion with David, I know that he was also interested in including, from time to time, something of broader interest, and I will encourage this as space permits. The article below from Jeffrey Pearce fits this description.

I fulfilled a life long ambition as soon as I could afford it, by getting my PPL in 1996. Until recently I used an aeroplane purely for recreational purposes, so my gaining of one of the last of the old UK/CAA IRs in 2003 was motivated by the technical interest and the challenge rather than out of any utility or necessity. I fly a group-owned Grumman Tiger out of Biggin Hill. Notwithstanding the use for recreation only, seven years of instrument flying has convinced me of the enormous all weather utility that can be had with an IR, even in a comparatively low performance and unsophisticated machine such as the Tiger. Last year I qualified as an IR/IMCr instructor and I am now taking my first two students through the IMCr. You can bet that I will next be setting out to convince them that they really need IRs! I am one of those lucky men who has a partner who also likes to fly with me, as an informally trained unqualified P2. We also both enjoy writing (although Judith is much better at it than I am), and you may have come across articles we have published in Pilot and Flyer magazines.

Instrument Pilot magazine is definitely a product of the membership for the membership. It depends entirely on a regular flow of articles from you. I am pleased to say that new names are coming forward alongside regular contributors, but for each edition David has had to work hard at persuading and cajoling people for their contributions. I have to say the prospect of having to find around 16,000 to 18,000 words for each edition is already threatening to give me sleepless nights. If you have any ideas at all for an article please do not be slow in coming forward. I am more than willing to advise and help you shape if needed. One particular item I want to develop is an instrument pilot version of 'I learnt abut flying from that'. If you have been involved in any scrapes or incidents please write them up for me. I am very happy to anonymise them, and they would doubtless be of great help to the learning of others. I look forward to hearing from you!

The other reason why GA pilots stop flying

By Jeffrey Pearce

Jeff offers an interesting new perspective on the GA pilot drop-out rate

From time to time in the aviation press there are articles or letters bemoaning the horrendous drop out rate of pilots who have let their flying licences lapse, and presumably moved on to other things within a few years. The haemorrhaging of pilot numbers is not good for GA and anything that can be done to reduce the losses has got to be a good thing. The question is; what?

Whilst certain aspects, for example cost, are often quoted as a reason for pilots leaving, I remain unconvinced that this, or many of the other reasons given are, in fact, the biggest causes of these losses. Changes in financial circumstances may force GA pilots to give up their hobby, others will try and keep flying through some less expensive route such as microlights or gliders. But cost can only be a factor in a small number of cases of newly qualified pilots. After all, they found the money for expensive flying lessons at greater hourly rates than those of simply hiring an aircraft to go flying on their own. So I don't think that argument 'holds water' for any, other than a few individuals affected by a drop in income.

Another reason often given for pilots

hanging up their wings goes like this. On getting their PPL most new pilots will have gone no further afield on their own than their qualifying cross country and to many the idea of 'boldly going' to some more distant airfield on their own gives just as much cause for concern as it would to the crew of the Starship Enterprise. The resulting restrictions on new pilots will quickly result in the thrill of flying for its own sake to pall. Some will keep the excitement alive by moving on to other things, aerobatics, getting a tail dragger qualification or higher rating. However, although their first motivation may have been to learn to fly for the sense of achievement, many if not most, will have had a strong secondary motive of wanting the ability to go places quickly and more easily than could be achieved using a car. For these pilots gaining extra qualifications adds to their sense of achievement, but only puts off the fateful day when they have to pluck up courage and set out on their own. Having 'slipped the surly bonds of earth', slipping the surly bonds of your local known environment may prove just as big a hurdle and there are only so many £100 hamburgers you can eat at the local airfields before the novelty wears off. It is to tackle this that the AOPA Mentoring scheme has been developed. All pilots who have the best interests of GA at heart will wish all those involved in this the very best, as it represents arguably the most important steps taken to try and overcome new pilots' reluctance to venture forth to more distant venues. (*Ed.* And an excellent scheme it is too - in the development of which our own Timothy Nathan played a significant part. See www.aopa.co.uk/scripts/mentoring.php.)

But I want to suggest there is another factor as least as significant as those above which produces male drop-out. That is the responses of wives/partners/girlfriends to their men's flying. Look around our AGM meetings, or any other pilot group, and it is immediately obvious that flying is very much a male pursuit. Whilst the number of female pilots is increasing, they still form a pitifully small percentage of the total number of pilots, commercial or GA. To understand the relevance this has to pilot drop-out rates you have to consider why there is this huge disparity in the sexes. Flying often doesn't 'appeal' to many women. I suggest we need to understand the reasons behind that and do something to redress it. Otherwise we not only exclude half the population from the possibility of being pilots, but we probably also experience a corrosive and detrimental effect on the male population that does fly. Now I realise that what follows is potentially contentious and likely to bring the wrath of some women (and men?) down on my head. In the limited space available I can also only put a fairly bald case, but I write in the spirit of wanting to move forward. My point is that some deep seated differences between the sexes come into play. It has been said, in jest, that men and women are more like separate species than separate sexes and certainly our outlook on things can be very different. The book Men are from Mars, Women are from Venus advocates the notion that men and women are fundamentally different. The Irish say 'You can take the man out of the bog, but you can't take the bog out of the man'. It follows that 'You can take the man (or woman) out of the cave, you can't take the cave out of the man'. In simplistic terms the book argues that we are still at heart 'cave men' (and women!), with the underlying differences that our early species' evolution required of us still deep in our psyches. Pre-historically it was men's job to go off and hunt for food and defend their territory, while women stayed at home nurturing the children and defending the home, if necessary, from wild animals. This fundamental distinction in responsibilities meant that each sex needed different abilities and over aeons of evolution this has led to different skill sets and outlooks on life between the sexes. I emphasise, not better, not more important, just different. In the case of women, the ability to be able to communicate with other women of the tribe, look after children, cook food, etc., were the skills that were paramount, in short, family and socially based skills. For men, finding their way over large distances in pursuit of game, the hand and eye co-ordination of throwing a spear to bring down that game, and the readiness to put themselves in a potentially dangerous situation in defence of the tribe were what counted. Any new 'gadget' that made this task easier/safer would have been adopted readily. One can barely imagine the excitement Ug the caveman felt when the bow was first invented and its superior fire power was realised!

So, the argument continues, this arrangement seems to have worked reasonably well for thousands, indeed millions of years. Only in recent times (in evolutionary terms - the blink of an eye) has this skills division been challenged. Many women now go out to work, men share the chores around the house, and in some cases have to accept their partners having more high powered and challenging jobs. Many books have been written as to the social implications of these changes. In any case, the feminist view tends to see the above distinctions as a mythology created by men to keep women in their traditional role. Let's not go there, leaving others to argue those rights and wrongs. Instead, assuming there might be something in the argument as given, let's consider the legacy of our backgrounds with regard to aviation starting with the posited male interests and attributes that relate to flying:

1. 'The ability to find their way over large distances.' Is there a pilot who doesn't get a sense of satisfaction when arriving safely at a destination using all their navigational and other skills to master the environment?
2. 'The hand and eye co-ordination of throwing a spear.' Not much spear throwing in aviation, but what pilot doesn't get a sense of achievement from hand, eye and indeed foot co-ordination to pull off that perfect landing?
3. 'The readiness to put oneself in a potentially dangerous situation.' Not all men are driven by the adrenaline rush of dangerous pursuits, although undoubtedly some are. Rather, the 'average' man is more ready to accept and be attracted by a higher level of risk than the 'average' woman.
4. 'Any new gadget that made this task easier and/or safer would have been adopted readily'. Gadgets don't come much bigger than aircraft and the list of gadgets that go in them is endless. Do you know any pilot, however content with his aircraft and the avionics fit, who doesn't harbour at least a slight desire for something, bigger, faster or the latest GPS, weather radar etc?

Flying ticks many boxes for the 'average' man and few if any of the boxes for the 'average' woman. The net result is that flying is a largely male preserve which their female partners put up with, sometimes with a degree of resentment. Lucky is the man who flies and has a partner who is keen to fly with him or, better still, is a pilot herself. For many men, I suspect the urge to go flying is tempered by some feeling of guilt at such selfish enjoyment. Attempts to relieve that guilt by trying to encourage our partners to accompany us are of limited help since the whole concept of flying is at odds with their female perspective. Rightly or wrongly, flying is seen as inherently more dangerous than, for instance, travel by car so, from their viewpoint, why risk it? Doubtless there will be male pilots out there who are so self centred that the feelings of their partners

will not dissuade them but, for most, I suspect it is the 'drip, drip, drip' of that underlying guilty conscience that eventually causes a pilot to consider whether he can justify continuing to fly. Add the difficulty of maintaining currency during a British winter and you have all the ingredients for a drift away from flying to a more 'sociably' acceptable pursuit. For some of course the aviation bug has bitten so hard that despite a guilty conscience they must keep coming back for their fix. Even for them though, flying must, over time, become something of a bitter sweet enjoyment.

I wish I knew the answer, but one thing is for sure, there is no quick fix on this one. However, a few things we can do to improve the odds if we focus on non-flying women.

1. We must do everything we can to encourage women into flying, and not just at a national or international level, but also at grass roots and local level. If your partner or girlfriend shows any interest in flying, encourage that interest at every opportunity. If not to PPL level, can you persuade her to do a safety pilot course or at least get her sufficiently into it to understand the basics and be able to help tune the radio etc? Many women have been hooked this way!
2. Play down the risk and play up safety. On the clear and proven pretext that you can learn from other people's mistakes, the aviation press readily reports accidents and incidents so we might learn from them. Whilst this is undoubtedly informative and useful, to the uninitiated it appears that GA flying is inherently unsafe, with small aircraft falling out of the sky with alarming regularity. The perception is that those who fly are either foolhardy, brave, super human or possibly all three! Whilst not suggesting copies of ***Pilot*** or ***Flyer*** magazine should be secreted away in some dark place hidden away from the spouses' prying eyes, there is perhaps a case of not leaving your copy open on the coffee table at the safety reports page, but instead pointing to the thousands of hours GA pilots fly without incident.
3. Have fly-ins that will have as their main purpose something that is of interest to women as well as men. I am not suggesting fly-ins organised around a fashion show or shopping exhibition; that won't motivate the male pilot to turn up, but doesn't that prove the point? We would not expect a male pilot to fly to a distant airfield to attend a fashion parade, yet we expect our partners to accompany us for, what is to them, the dubious benefit of looking at different aircraft! Surely there must be some common ground here. We could meet several needs at once by bringing a family aspect to fly-ins with some activities geared to children and young people. Certainly the social fly-ins that ***PPL/IR Europe*** organise are the one thing that will make my own wife, who is a very nervous flyer, overcome her fears and readily agree to fly to attend. For her, the end justifies the means and maybe that is the way forward. Other women are attracted to longer PPL/IR holidays visiting a number of cities. What we need are more aviation events which aim to have a strong appeal to both sexes.

I don't suggest this will change things overnight, or that this is the only way the problem I have outlined can be overcome, but I do feel this issue of the female perspective is another big reason for pilot drop out and it is not one I have ever seen openly discussed. And with that I will quickly lower my head back down below the parapet!

Three PPL/IR pilots Dave Findon (front left), Bill Inglis (front right) and Paul Turner (rear) are lucky enough to share their passion with pilot partners Helena Roukolain, Shelagh Inglis and Sally Turner (inset, taking the photo)

Getting an IR on my own aircraft

By Daniel Foster

Part 2 of 2

Daniel concludes his account of the steps taken to prepare his Rockwell Commander 114A G-NATT, for gaining his JAR instrument rating

Preparing the aircraft for the test

On our arrival back at Liverpool we made arrangements to have the aircraft approved for taking the test. In order to use my own aircraft, we would need a set of screens to limit the view out from the left hand seat. I had asked around, but nobody seemed to have any templates for a Commander, so I would need to make my own and get them approved by the CAA. Leaning on the CFI at my school, we made a set of screens out of old cardboard boxes as templates. This was a very Blue Peter-esque effort, involving sitting in the aircraft for an hour or two and cutting pieces of old boxes to fit around the padded coaming and complex curves of the windows, instrument panel and interior finish. Once complete, these were used as templates to cut sections of foamboard, creating a much more resilient and presentable solution. As the screens are really only intended for the course and the test (though they are still in use now by several members of the group), the fixing to the aircraft didn't need to be perfect. When in use, they are held in place with strategically placed Velcro and a couple of bulldog clips. It all sounds rather Heath Robinson, but in practice is quite simple and very effective. Two simpler elements of the screen construction were those to limit my view of the AI, HSI and RMI. The former two were covered by a single piece which blocked my view but allowed the examiner to see, and the RMI was simply blocked off altogether.

Having the full set of screens crafted, numbered and labelled with the aircraft registration and 'top' on each one, this apparently not being obvious from the orientation of the writing, we were ready to present the aircraft to the local CAA examiner for approval. As the nearest test centre is at Leeds Bradford Airport, we flew over there as part of a lesson and paid the princely sum of £172 for the examiner to sit in the aircraft for 20 minutes and check that he couldn't see out. He also reviewed the aircraft's paperwork, finding everything in order bar the insurance. There are specific words the CAA likes to see that stipulate the insurance cover is valid when an employee of the CAA is conducting a flight test. I didn't have the appropriate paperwork with me on the day, but I'm obviously not the first person to make this mistake as there exists a very pragmatic solution. With everything else in order, the test approval is given and then immediately revoked with a note that the insurance documentation needs to be verified. This saves a further expensive appointment being needed to try again for test approval. On the day of the test, the documentation is checked and then the test approval form is annotated to say that the insurance is correct.

Getting the 170A

The next time out, I was sent with a different instructor to check that I hadn't been doing anything that my main instructor had overlooked, and after a 1¾ hour flight containing a SID, tracking, holds and a couple of approaches it was decided that I was ready to go for the test. Just the small matter of a 170A flight to confirm this, the longest flight of my training at 2 hours 40 minutes. Long as the flight was, the training thus far had prepared me well and there was nothing out of the ordinary. I could even remember partial panel timed turns. And so it was, with 50 hours and 5 minutes of the course completed, that the moment had arrived to take the dreaded IR skills test. With the £762 exam fee paid to the CAA, this was set to be easily the most expensive flight I'd ever taken. The date was set as 17th November 2009 and all the arrangements were put in place - the aircraft was booked, weight and balance was done, charts and plates were assembled and, on the day before, the weather was checked. With the Leeds TAF giving an expected 22015G25KT, and the F214 giving 40kt winds aloft I took the disappointing decision to cancel and reschedule the test. The weather remained grotty for a couple of weeks but everything came together on the 1st December. Once again I went through the preparations, with the fact that the aircraft's annual was due in a fortnight nagging at the back of my mind. I flew for a couple of hours the preceding day with my instructor just to make sure I could remember how to do it all, and it was decided that I could.

I'm not much of a morning person, so

was very grateful that the test slot was in the afternoon. Rather than getting up several hours before I normally would, with the inevitable human factors effects, I could get up at a sensible time and be well rested before the big day. The school had chosen someone who had been through the whole thing not too long ago to fly over to Leeds with me. It would be VFR with me as P1 on the way flying as if it were IFR to get me into the right frame of mind. He would then kindly sit in the ***Multiflight*** lounge while I took the test and fly back with me, once again VFR, after the test was over. I'm not a nervous person, but was happy to have the company for the positioning flights.

Rockwell Commander kitted out with IFR screens

'Leeds Tower, Golf November.., correction, Exam 08...'

As soon as we arrived, the planning got under way. My route was to be a SID, then airways to Doncaster before going to the north for the general handling part of the flight and back to negotiate a rejoin with Leeds for an ILS to land. Satisfied with the plan, the weight and balance, the insurance and everything else, I left the comfort and friendly staff of the briefing facility for the aircraft. Familiar checks complete (this was the most I have ever flown in a year), it was time to call for start. We were IFR, after all. I had only flown on a call sign twice before, and both times continually fluffed the call, *'Golf November.., correction, JD14A…'* so I was a little nervous about this seemingly innocuous aspect of the day! My concerns were immediately borne out with my first call, *'Leeds Tower, Golf November.., correction, Exam 08 with information Romeo, QNH 1009, request start.'* Not the best start to the flight! With that out of my system, I didn't make the same mistake again so perhaps it was better out than in.

The departure from runway 32 had been rehearsed as it involves a relatively large amount of knob twiddling and there are a few gotchas which will give a test fail to the unsuspecting candidate. Fortunately on the day the wind dictated a POL1X runway 14 departure which is altogether easier, essentially being a right turn out on track to the Pole Hill VOR at 2 DME from I-LBF. The short airways route that followed was basically a left turn at POL to track south to DENBY, and then a left turn to follow L975 to UPTON before joining at Doncaster. On the leg from POL to DENBY, however, I managed to look at the wrong figure on my plog and convince myself that it was time to turn left. This didn't feel right, but I did it anyway. It wasn't long before I realised my mistake and turned right again to track towards DENBY, fortunately staying within the lateral limits of the airway the whole time. Once we were tracking back to DENBY the examiner asked what had happened, so I explained. In my mind, I had just failed the easiest part of the test so I relaxed and got on with making the rest of the flight as good as possible in the belief that a partial pass would be better than a fail!

At Doncaster the plan was to arrive at the FNY NDB to demonstrate that I could perform the required hold, then make an NDB/DME approach to runway 20. With the arrival from the northwest, I made a simple direct entry and, as soon as we'd completed half a racetrack and were tracking back towards FNY, I was told to request that we go outbound this time round. We hadn't even completed the join, let alone a full hold. My mind said this was because I'd failed thanks to the earlier mistake and that we were simply going through the motions. Request made, we did indeed go outbound for the procedure, which is a straightforward example of this type of approach. Turning inbound at 10.6 DME and descending from 7.6 DME, everything was working out. We arrived at the minimum descent altitude and I added power to stay level until the missed approach point, over the FNY beacon. Climbing away from a non standard missed approach procedure, the examiner gave me directions to the north for the general handling part of the test. With the partial panel screens in place and the timed turns complete, we moved on to recovery from unusual attitudes. The attitudes were a lot more unusual than any I had encountered during training! Obviously I couldn't see out, but I'm certain that all the elements were more exaggerated than I'd rehearsed - steeper climbs and descents, higher angles of bank etc. Still, my training did the trick and that part was over, partial panel screens down, and time to head back.

After flying around for an hour thinking I'd failed

Taking just a moment to reorient myself, we set course and I called Leeds to ask for joining instructions for an ILS to runway 14. We were given vectors to final and the ILS was a simple one. The screens were gradually taken down as we descended with the glide path until the only one that remained was directly in front of me. This was removed at DA, and the Commander's trailing link undercarriage flattered the landing, which I'm sure would have been fine in any case!

We taxied back to ***Multiflight*** and parked up where I was ready to be told that I'd managed to salvage a partial pass from the terrible beginning. After a short debrief along the lines of everything was very good bar the obvious error, he told me that I would be given a *'pass with a telling off,'* and that he'd tell the school's CFI what had happened. I knew this would lead to another ticking off when I got back to Liverpool and reported in. I couldn't believe it - a pass after flying around for an hour thinking I'd failed!

It was a wonderful feeling which still returns when I think of that day. It's right up there with first solo, qualifying cross country and PPL skills test as another unforgettable flying moment. Now to go and use the rating.

Mobile Communications

By Peter Holy

This article describes a range of internet access options for pilots on the move

Travelling executive types are generally well supported by their employer and there are many business packages for mobile connectivity, based around GPRS/3G contracts, using a Blackberry or a similar type of Smartphone. This article deals with the 'intermittent usage' scenario which is more typical for a private pilot.

Why Internet?

A lot has changed during the 2000-2010 decade. When I learnt to fly in 2000/2001, the internet was never mentioned, and the ***UK Met Office*** was promoting the use of premium-rate faxback numbers for weather charts. There was a big change with Notams when the UK Notam website was introduced in 2002. The site did not become usable for another year, during which time a lot of vital information (e.g. temporary prohibited areas around French nuclear power stations) was missing. However, this site marked a watershed by making internet access *de facto* mandatory for any flight. A second development arrived in 2009 when the Flight Briefing Units (FBUs) were closed, closing off the option to file flight plans by telephone or fax, and introducing the ***AFPEx*** internet-based flight plan filing facility (www.flightplanningonline.co.uk) It is clear that many pilots never obtain Notams (they did not feature in my PPL training) and thus those without internet access were able to carry on flying. ***AFPEx*** however forced the internet access issue into the open because without filing a flight plan one cannot even pop down to Le Touquet. There are now several online flight plan filing facilities.

Aviation weather appears to have been available on the internet for a long time, but today the internet is sole source of weather data for most pilots. The range of weather information is vast. Nearly everything needed can be obtained free, including a lot of previously expensive stuff (e.g. weather radar). The products which remain chargeable have not generally increased in price. Many pilots still prefer to pay for access to sites which concentrate the data in a useful manner. ***Avbrief*** is one example (www.avbrief.com).

Communication with foreign airports is another issue requiring internet access. Many airports are PPR or PNR, and many are 'Customs PNR'. UK pilots are not used to this but there are European countries where one will be denied a landing clearance if they have not (or think they have not) received the notification, so it is important to get the message through and obtain an acknowledgement. In effect PNR is the same as PPR. There are also countries (Italy and Greece come to mind) where a written reply is highly desirable. While many individuals have been on email since around 1995, and businesses from some years later, airports have been much slower on the uptake. Many use email now however. A lot of airports still use fax, but even there the internet is very useful. By far the simplest way to send and receive faxes is with an email-to-fax and fax-to-email facility. It is possible to fax directly from a PC (e.g. using ***Winfax*** with a suitable modem) but this is a poor solution for travelling pilots, not least because the computer must be continuously switched on to receive faxes. Another means of communicating with airports is using the AFTN free text feature in the ***AFPEx*** program; for some reason this works less often than it should. I have been testing different airport contacting methods over the past few years and the one which works best is sending an email, a fax and an AFTN message concurrently, with all sender contact details replicated in the body of the message. The contact details can be found in the national AIPs, in the ACUKWIK airport directory, or in flight planning software such as ***Navbox*** (www.navbox.nl). A lot of this data is out of date and it is not unusual to have to try peripherally related contacts e.g. a handling agent before the correct contact details are found.

Laptop Connectivity Options

Ethernet is a cable connection, and is often available in hotels. It is fast, reliable, and requires no configuration on most laptops, nearly all of which have Ethernet built-in. With a few exceptions of charged-for connections in hotels, it is free and just works. You may need to bring your own Ethernet cable.

WIFI is a short-range (tens of metres, generally) radio link. Public access points (most of which are commercial) are widely available in tourist and business areas, and one can usually access unsecured points in residential areas. It is a matter of opinion whether this is legal, as one is using a network belonging to a third party without having sought their permission. The commercial access points use a billing system which assumes you start by using a web browser, and redirects the browser to a different website which asks for credit card details, etc. This redirection is sometimes done in a manner which requires the browser to be ***Microsoft Internet Explorer***. The tariffs range from reasonable to silly-price, but the deal rarely makes sense unless you are staying at that location for a while. Some hotels provide a free password for their network, and this is the point where you enter the password. If however you are not using a web browser (e.g. you are merely collecting email using an email application on a laptop or a wifi-equipped phone) you will never get a connection. WIFI is built into practically every laptop built in the last 5 years and is the internet connection of choice - if you can find a usable network. For older laptops, there are USB and PCMCIA adaptors.

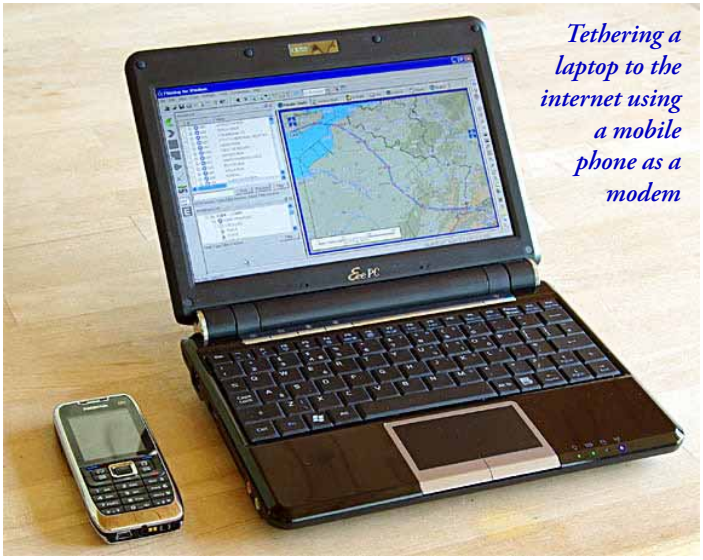
USB and PCMCIA wireless network adaptors

GPRS/3G is a long range connection which provides internet access on the back of the GSM mobile phone network. From the user's point of view, GPRS and 3G are identical except for the speed and geographical coverage. GPRS is quite slow - similar to the last generation of 56k dial-up modems. 3G is about 10x faster than GPRS and is similar to low-end ADSL, but there are different flavours of 3G some of which are much faster. Nowadays, GPRS coverage is practically identical to plain GSM (voice call) coverage, so if your phone shows a signal, GPRS should work. 3G uses a different infrastructure and despite the hype, its coverage remains poor outside large-city and other business/tourist areas. There is a collection of names for this technology. 3G is also called UMTS or W-CDMA or HSDPA or 3.5G. EDGE is like GPRS but 2x faster. If a 3G radio cannot find a 3G signal it will look for a GPRS signal. The bottom line is that you get an internet connection one way or another, but the speed can vary a lot. The reliability depends mainly on how strong the signal is. The cost (usually charged per kilobyte) is the same regardless of the connection type. The fastest 3G networks are very fast and many contract users have inadvertently run up 5-figure bills in a matter of hours. GPRS/3G is built into only a few laptops so most laptop users will be using an external GPRS/3G radio; usually this is USB attached but there are also PCMCIA versions which are rather more sturdy and can be left plugged-in permanently.

GPRS/ 3G radio antennae

Most of the above devices are network provider locked, but can be unlocked using ***DC-Unlocker*** (www.dc-unlocker.com.) However, it is worth paying a bit extra to get an unlocked one.

Beware, SIM cards purchased with products such as the above are frequently configured (the industry term is 'provisioned') for tariffs which may carry much higher data pricing than SIM cards purchased alone, or with a phone. Many modern phones are GPRS/ 3G capable (many older phones supported only GPRS) and these phones can be used as a modem to provide a laptop with an internet connection. The phone connects to the laptop using ***Bluetooth*** (another very short range radio link), or with a USB cable.



Tethering a laptop to the internet using a mobile phone as a modem

Using a phone as a modem for a laptop is also called 'tethering', which is a bit of a hot topic. Some networks try to stop this usage in their Terms & Conditions because they offer 'unlimited' deals for phone-only internet access which they hope will not be heavily utilised due to the poor capabilities of a typical phone. The networks are deliberately ambiguous about how or whether they can detect tethering. Technically they could make a reasonable guess by looking at the data passing through but I have not seen any evidence that they actually do this. One company insider told me they might look at an individual case if they saw exceptionally heavy data usage (gigabytes per month). Using a phone to connect is not as neat as a laptop with built-in GPRS/3G but has the big advantage that you have just the one SIM card to look after, keep topped up, pay the contract on, etc. After all, most people carry their phone everywhere anyway. This is particularly relevant when travelling in the EU, where some networks have mandated the advance purchase of a data bundle for any internet access whatever. It also avoids another irritating issue. A SIM card installed inside a laptop, for the typical sporadic aviation usage, is unlikely to be a contract card, but if a Pay as You Go (PAYG) card is not used for a billable event (an SMS or an outgoing call) for 3-6 months, or doesn't get topped up for X months, it gets terminated by the network, with a forfeit of any balance on it.

No Laptop?

One doesn't need a laptop to access the internet usefully enough for flying. Most modern phones can do it to varying degrees. My ***Nokia*** E51 (pictured below left) can do it, though obviously viewing most websites is torturous due to the small screen size. It is however fine for getting TAFs/METARs using special compact sites such as ***Yaws*** (http://yaws.mobi) and ***Avbrief/PDA*** (www.avbrief.com/pda/opmet.html.) Larger phones such as the ***Iphone***, are a lot better. What remains difficult with phones is looking at weather charts, filling in large website forms, and running certain applications, for example the ***AFPEx*** flight plan filing system. Many websites also don't work on phones, or work only partially, because the web browser on the phone is different from those routinely used on Windows computers (Internet Explorer or Firefox). There are other compact devices which are not traditional laptops but which are quite usable. One is the ***Apple Ipad***, and there is a growing number of tablet-type products which run standard ***Windows*** and all its application software such as the Viliv X70EX. Most of these have GPRS/3G built-in, but most of them also have ***Bluetooth*** and can thus connect via a phone as discussed above.

Airborne Internet

As most pilots will have noticed, connectivity is not totally lost when in the air. Generally, below 2000ft but often surprisingly much higher, text messages can be sent and received. GPRS/3G is usually a total loss when airborne, however, and that rules out internet connectivity. There is actually a method which can work - a 9.6k GSM dial up to an ISP which still supports modems - but this is obscure, very slow, and remains limited to low altitudes. The networks discourage all of this anyway because the phone can end up in range of many base stations concurrently, which increases the network management workload.

The practical way to get airborne internet is a satellite phone. There are many ways to do this but, at its simplest, it is really very easy: a used ***Thuraya*** 7100 phone can be found on Ebay for about £300 (plus the SIM card), and this connects to a laptop using a USB cable.

Thuraya satellite phone for connecting to the internet while in the air

On the laptop, (Windows assumed here, you can't do this with an Ipad), you configure a 'dial up networking' connection, with '1722' as the number to call. The phone's antenna needs to point to the satellite, with a direct line of sight; the geostationary Thuraya satellite is to the south east of Europe. The result is slow (very slow - 9.6k bits/second) and not very reliable, but is fine for textual data and even a bit of graphics here and there. Stay away from content rich websites like sony.com. Obtaining METARs and TAFs for a destination and a few alternates, several hours into a 6-hour flight, costs about $1, is a real killer capability and is much more successful than pestering busy ATC for airport weather. Professional airborne data systems use Iridium or Immarsat networks but these are an order of magnitude more expensive than Thuraya.

Costs of Mobile Data

There is a huge variation and a useful summary is not really possible because different networks offer different deals and they change regularly. Currently (2010):

Non-roaming (e.g. within the UK, with a UK network SIM card) usage is virtually free for reasonable amounts of data, with deals like 30p/day for up to 30MB. Similar non-roaming deals exist within most countries, but of course you need to purchase a local-network SIM card, which is problematic if you are using your personal phone for internet access, because its number will change - which is exactly why so many people pay heavily for roaming use! Roaming cost varies dramatically between EU and non-EU. In March 2010, EU legislative moves (driven partly by well publicized scandals involving inadvertent 4- and 5-figure 3G bills) resulted in most networks introducing bundle deals for roaming within the EU, for contract users. One example (***T-Mobile***) is £10 for 50MB for 30 days. However, roaming rates tend to be published in a manner which requires a ferret to dig them out. ***Thuraya*** satellite dial-up access costs $0.99 per minute, for 9.6k dial-up, delivering about 50kbytes/minute.

There is a similarly huge variation in how much data different websites use. A recent measurement of data used on a flight plan filing operation using ***Homebriefing*** (www.homebriefing.com), ***AFPEx***, and ***EuroFPL*** (www.eurofpl.eu) showed their data usage as 1.4MB, 0.4MB and 0.1MB respectively. However, details matter. If you download the ***EuroFPL*** route briefing, that adds about 1MB. Most internet data is represented inefficiently; for example text (which includes HTML) can be easily compressed 10:1. Unsurprisingly, there are several proxy services out there which offer data compression, usually for an annual fee. The operation is largely transparent to the user and it is easy to reduce one's data costs by five times. Unfortunately, having used one such provider for some years, I cannot recommend it due to poor reliability and billing hassles.

Mobile Data Tips

Nowadays, GPRS coverage is virtually universal, so the challenge is not getting a connection but keeping a lid on costs. Unless your employer is paying, or you are on one of the higher-end phone contracts with lots of free roaming data, always look for an unsecured WIFI network first. It will deliver the fastest connection, and if it just works it will be free. Key ring sized network detectors are available for a few pounds from stores such as ***Maplin*** and will save you the trouble of booting up your computer just to hunt for a network. However they will not tell you whether or not the network is secured or non-secured. In any case, bear in mind the above comments on the legality of this method.

Disable all automatic updates. The well-known ones are ***Microsoft (Windows)***, antivirus software, ***Adobe*** software (including the free ***Acrobat*** reader), ***Firefox*** and ***Java***, but there are others which can bite you and run up a £100 bill, or blow away the entire PAYG SIM card balance, in much less than an hour. Disabling auto updates is anyway a good policy for any mission critical computer because updates sometimes break something; if it works, don't mess with it! ***Microsoft*** updates are desirable, to plug back doors for viruses etc, but this is an issue only if you are using a ***Microsoft*** web browser or ***Microsoft*** email software. The updates are best downloaded manually (by going to www.microsoft.com) when at home on ADSL and when the computer can be properly tested afterwards, before the next trip.

In each device used to retrieve emails (laptop, phone) configure the email application to retrieve only the first 10k bytes (or so) of each email. Otherwise, bang goes another £100 when someone emails you a few pictures! If using POP email retrieval (the most common method for private individuals, enterprises use different schemes e.g. ***Exchange***), configure the email app to 'leave messages on the server' and then those huge emails can be retrieved in full, on your home PC, when you get back home.

Alternative approaches which prevent the massive email billing shock include using a web mail type of access to email. Well known web mail examples are ***Hotmail***, ***Yahoo***, etc, but most ISPs also provide web mail access to your normal email account. A web mail account makes it easy to delete unwanted emails, too.

Roaming data pricing structures can catch you out. For example: the above ***T-Mobile*** £10/50MB EU roaming bundle comes to just 20p/MB - very cheap and a perfect deal for a holiday. But step across the border from Slovenia (EU) to Croatia (non EU) and the bundle no longer applies, with the 20p/MB going up to £7.50/MB. This is not a problem for carefully controlled light usage (aviation weather, flight plan filing, etc) using non-bloated websites but downloading a movie on a fast 3G connection could cost well into 4 digits.

Remember that all foreign network usage is charged at roaming rates even if the company has the same name as your UK network. So e.g. if you are with ***Vodafone UK***, and travel to Italy and there you pick up a network calling itself ***Vodafone Italy***, you will pay the full EU roaming data rate.

Progress report on EASA OPS working group

Based on an interview with Julian Scarfe

This article has two goals. Firstly to inform of potential future changes and secondly to let members know what work is going on behind the scenes to protect the future of private IFR flight in Europe. Julian Scarfe is working as an expert as part of an EASA working group to review draft Implementing Rules that have been produced for OPS.

By way of background, it is useful to explain how an Implementing Rule fits into the bigger picture of European rulemaking. As we move towards a ***Single European Sky*** there has to be a common set of rules. The Basic Regulation (No 216/2008) is the foundation and is an act of the European Parliament, and covers topics such as licensing, airworthiness, and operations. The Basic Regulation is then supported by a series of annexes containing Essential Requirements which add some detail but which are often still at a relatively high level of abstraction. The Basic Regulation and the associated Essential Requirements for airworthiness have been in place (in the form of Part-M) since 2005, and Part-FCL and Part-OPS will come into force in April 2011.

Implementing Rules then provide a further level of detail that will allow a common interpretation of the Essential Requirements. The four goals of the Essential Requirements and Implementing Rules are:

- To provide a uniform and high level of safety across the EU
- To reduce the environmental impact of aviation
- Be proportionate to the level of risk
- Be compliant with ***ICAO*** rules

Because Implementing Rules by their very nature are technical and detailed, their process for creation goes beyond the ***European Commission***. Firstly, the drafting of Implementing Rules is delegated to ***EASA***. Note that ***EASA*** has the responsibly and authority only to draft rules, not to write or approve them. Once ***EASA*** is satisfied with an Implementing Rule, it passes it back into the rulemaking process of the ***European Commission***. Secondly, ***EASA*** acknowledges that it does not necessarily have all the required expertise in house for the creation of draft Implementing Rules. As a result, it publishes early drafts for comment, and also brings in outside expertise to refine these early drafts before they go as recommendations to the ***European Commission***. This is where Julian comes in.

Categorisation for EASA Ops

For the purposes of OPS, ***EASA*** have chosen to divide the world of aviation into four categories, which naturally brings some new acronyms:

	Commercial	**Non-commercial**
Complex	CAT: Commercial Air Transport	NCC: Non-commercial complex
Non-complex	SPO: Special Operations (aerial work)	NCO: Non-commercial operations

CAT Commercial air transport = complex type plus commercial operations

NCC Non-commercial complex = complex type plus non-commercial operations

SPO Special operations e.g. SEP flight training

NCO Non-commercial operations = non-complex type plus non-commercial operation i.e. most of us

The dividing line between complex and non-complex is triggered by any of the following: MTOW (5.7t), number of seats (>19), multicrew, jet or twin turboprop.

EASA have chosen to create four independent sets of Implementing Rules for each of the categories and have four independent review groups. This is good for us, as it means we have the opportunity to end up with lighter and more appropriate regulation. It also means there is less interaction between the review groups.

EASA looked to ***Europe Air Sports*** (of which ***PPL/IR Europe*** is a member) to nominate experts for the SPO review group and the NCO review group. Vasa Babic recommended to EAS that they put forward Julian. This is good for us as well, as Julian not only has a very deep knowledge of the rules as they stand today, he has also a real passion for proper regulation that strikes the right balance between safety and utility. On top of this, he has IFR NCO currency.

His NCO working group has seven members and covers VFR and IFR. He sees his role to make sure that regulation for NCO ends up being proportionate and practical and he is focusing on redrafting or commenting on issues relating to instrument flight. There is clearly an opportunity for NCO OPS regulation to be simpler by paying attention to the very different nature of operations in each of the categories. For the NCO group, Julian reports that there is a lot of opportunity to strip superfluous material out of the Implementing Rule - in particular where material is repeated higher up in the hierarchy of rules. He is also keen to see consistency with ***ICAO*** standards, and by implication, not to exceed ***ICAO*** standards, as set out in Annex 6 Part 2 which currently applies to international GA operations.

To give a sense of the scale of the work and the timescales involved, the process started with ***EASA*** publishing draft Implementing Rules for comment during a four-month period at the end of 2008. About 10,000 comments received, including some very good comments from individuals. Vasa and Julian sent in comments on behalf of ***PPL/IR Europe***. The NCO OPS working group have shared out responsibility for reviewing the comments by area. Along with the other three review groups, they have an obligation to work with ***EASA*** in the coming months who will deliver their output in January 2011. This will take the form of a recommended draft Implementing Rule for ***EASA*** to present to the formal ***European Commission*** rulemaking process.

Julian reports that he is working with an impressive and diverse group of experts including a balloonist and glider pilot whom, along with the ***EASA*** team, he finds good to work with and have a real commitment to quality regulation.

P 12 ▶

Composite Oxygen Cylinder

By Paul Turner

This is the story of an epic project to install an EASA approved composite cylinder in a fixed oxygen installation for a G-Reg aircraft, illustrating the labyrinthine technical and legal aspects of modifications to certified aircraft.

In the beginning

Back in 2007, my aircraft, a Socata TB21 Turbo Trinidad, reached its twentieth birthday and was due an extensive upgrade. The engine had just had a 2000 hours comprehensive overhaul, and the airframe was about to undergo a complete re-spray. Also planned were installation of TKS to provide known-ice capability, and a significant avionics upgrade including dual WAAS GPS, radar altimeter, traffic alerting and new upholstery. The original steel oxygen cylinder had been installed since aircraft manufacture and, like all '3HT' bottles (see side panel) was now life-expired.

There were three options for dealing with the oxygen: Firstly, I could try to replace the existing steel cylinder, but this is heavy and I was keen to offset some of the additional weight penalty incurred by all the new equipment. Secondly, I could ignore the installed system and simply continue to use a free-standing bottle. This would certainly be the cheapest solution but it seemed a waste to fly around with the weight of all the existing plumbing and not be able to use it. The stand-alone bottles are also much smaller and, unless a second bottle is also carried, this lacks redundancy. My third and preferred option was therefore to replace the steel bottle with a new light-weight composite cylinder. All new aircraft with oxygen systems (e.g. ***Piper Seneca***) are now supplied with composite cylinders and there is even an STC kit available for retrofit in the ***Cirrus*** SR20 and SR22. So just how hard could this be?

For an N-reg aircraft, replacing the original oxygen cylinder with a composite one could probably be achieved under a local field approval using a Form 337 and would probably take about a day's work. But under the ***EASA*** system, nothing can be installed legally on a certified aircraft unless it is approved. In essence, this requires a manufacturer who can provide an appropriate cylinder and regulator with a Form 1. The problem is that a Form 1 can only be issued against an approved design, and at the time no such design was available.

Design Approval

My first task was therefore to carry out extensive research of the options available and produce a booklet describing all the potential issues I could think of. I found a number of suitable cylinders, for example as used on ***Bombardier*** regional jets thus 'proving' suitability for aviation use. The regulators are matched to the cylinders and I needed one that allowed remote cable operation so it could be switched on or off from the cockpit. Again, such regulators were available although not in combination with my preferred cylinder! I looked at the dimensions of the new cylinder and the impact on installation, weight and balance and endurance. My booklet finally ran to 94 pages and my first point of call was the design team at ***Air Touring*** which was looking after my maintenance at the time. After much soul-searching, they decided that their design approval status could not extend to the task and so I needed to find additional help. I then came across a new design organisation called ***AeroDac*** that was being established by a number of former ***CAA*** employees. Although something of an unusual project, ***AeroDac*** agreed to help and we agreed terms. Little did either of us realise at how difficult and complex this project would turn out to be!

Impasse

AeroDac carried out an initial survey and started to look at the options. Meanwhile, work on the airframe was progressing and I was therefore in no particular hurry to get the oxygen system completed. I suppose dealing with the challenges of a new and growing company didn't help, but eventually, after about twelve months, ***AeroDac*** had made no real progress and it looked like the project was dead. The key problem was with the regulators available for the composite cylinders and the lack of suitable environmental data to prove their suitability for use in an unpressurised aircraft with a 25,000 foot ceiling. (On the ***Bombardier*** jets, they never go above a cabin altitude of about 12,000, although no-one ever explained to me what would happen if there had been a pressurisation failure at their 50,000 maximum operating altitude!)

All composite cylinders in the world are made by just one company, ***SCI Composites*** in California, and use of these cylinders appeared straightforward. But conducting a major environmental test of the P 13 ▶

◀ P 11 Julian's view is that when this is all over, we should expect little, if any, additional restrictions. He hopes that the final Implementing Rules will mean things are simpler and clearer than they are today. ***EASA*** certainly sees its role as making things simpler, not more complex. Incidentally, once an Implementing Rule is adopted by the ***European Commission***, ***EASA*** is not able to change it, so if we get this right now, we can expect some years of regulatory stability. On this point it is easy to get the impression that there is a never-ending flood of new regulation from the ***European Commission***. However, Julian's view is that there is an end in sight and that there are four major pieces of regulation: Part-M, SERA, Licensing, and OPS.

A ***Single European Sky*** in principle has benefits for all of us. However, to have that, we by definition need a new, and common set of rules. In the creation of new rules there is always the chance of unintended consequences, and we are fortunate to have someone as informed and as diligent as Julian to catch these early on our behalf. Once this process has run its course, Julian will present the results and tell us all about NCO OPS for private IFR flight.

◀ P 12 regulator for a one-off application was not going to be economically viable. Eventually ***AeroDac*** suggested using the original regulator in conjunction with a new cylinder and it seemed like we had found a way forward. Except we now had a number of new challenges to deal with.

Manufacturing

Nothing in this project was ever going to be simple, and the next problem to overcome was how to connect the old regulator to the new cylinder, each of which use different threads? This also takes us back to the Form 1 problem. ***AeroDac*** is a design organisation, and doesn't have Parts Manufacturer Approval (PMA), therefore it can't issue a Form 1. So even if I could get an approved design, no maintenance organisation could install the equipment! At this stage we therefore needed to bring a third company into the process, ***AeroCare***. As a manufacturing organisation, ***AeroCare*** could supply a Form 1 for the complete assembly, provided ***AeroDac*** could come up with a design.

Back on track, I decided to get the existing regulator overhauled. A number of ***PPL/IR Europe*** members overhaul oxygen regulators for stand-alone cylinders which is a job that takes a matter of minutes and costs a few pence for seals. However, for certified aircraft a Form 1 is again mandatory and there are very few organisations that have the capability to do this. Eventually, we decided to ship it back to the manufacturer, ***Intertechnique*** in France, and the cost of the overhaul rocketed to £1500! Weeks passed into months with no word from ***Intertechnique*** and we eventually discovered that they had mislaid the regulator!

New Blood

By the summer of 2009, some two years after starting the project and considerably out of pocket, I now wondered if this was ever going to become a reality. But then ***AeroDac*** appointed a new member of staff, Leon Winnert, to take up the project. Despite my initial frustration of going over old ground, Leon tackled the job with great enthusiasm and we finally seemed to be moving towards a conclusion. The missing regulator turned up and we found a ready-made collar adaptor to connect the regulator to the cylinder. There was now just a mass of minor detail that Leon needed to sort out before the job could be completed. For example, the steel cylinder required the regulator to be sealed with PTFE tape but the new cylinder specifically excluded the use of such tape and required a special sealing compound instead (Krytox, at nearly £250 a tube). ***AeroDac*** also managed to convince ***EASA*** that the application could be dealt with as a minor' rather than a 'major' mod, since only a supplement to the POH, rather than the full handbook, needed to be updated. A new supplement was created and ***EASA*** approval received in record time. This was probably the easiest part of the whole process!

Installation Issues

Leon also now started to address the final installation procedure. The new cylinder was very slightly smaller than the original and there were three key issues to address:

- The length of the cylinder, being slightly shorter, needed to be secured to prevent lateral movement in flight.
- The circumference of the cylinder is slightly smaller and the original securing harness had insufficient travel to provide a secure fit.
- The original on-off Bowden cable needed to be repositioned so that it correctly aligned with the new position of the regulator.

Although the distances involved above were small, Leon was nothing if not a perfectionist and proceeded to make up a wooden scale model to ensure all the dimensions were correctly accounted for, and appropriate solutions could be determined for each of the above issues.

Fire Test

Lulled into a false sense of security, it looked as if everything was going well when Leon dropped the final bombshell – there was no fire resistance data available for the composite cylinder! This was due to a misunderstanding, as we had believed that such data would be provided by ***SCI Composites***. Unfortunately, there was nothing available and, at this late stage in the process, we were left with no alternative but to conduct our own fire resistance test. This required the purchase of a second cylinder that could be cut up into the appropriate sizes for the test. Helpfully, ***SCI*** provided an old-stock cylinder of the same type at greatly reduced price, although there was still the additional cost and delay in shipping the cylinder over from California and conducting the tests at an approved organisation within the UK.

Summary

The new cylinder was finally installed over two and half years after starting the project. The end result was exactly what I had intended and I have even managed to secure an authorised increase in the baggage allowance by a modest 14lb! The complete modification is properly certified and application to other TB20s and TB21s should be relatively straightforward. In principle, a similar approach could also be followed for other aircraft types although this would require a new design.

The final cost was significantly more than I had originally budgeted, but, as with all things in aviation, it's never possible to justify the cost anyway. The key question is would I do it all again……?

If anyone would like further information and advice about how to go about such an exercise on their aircraft, please send me an email to paul@exec-flight.co.uk.

Types of oxygen cylinders for use in aircraft

There are two main categories of cylinder for use in aviation: steel or composite and all can be classified according to the relevant US Department of Transport standard under which they were manufactured.

Steel cylinders may be either type 3AA or 3HT. 3AA cylinders have an unlimited life (provided they continue to pass the regular three-year hydrostatic tests) but they use thicker grade steel and are therefore heavier.

More recent steel cylinders are type 3HT. They are lighter in weight but have a maximum life of 24 years.

Composite cylinders are manufactured using a lightweight aluminium core wrapped in either Kevlar or carbon fibre to provide additional strength. They are typically less than half the weight of a comparable steel cylinder. The relevant DoT standards are either SP10945 or SP8162. These cylinders require five-yearly hydrostatic tests and have an ultimate life of 15 years.

Pilots' talk

Compiled By Sahib Bleher

Dates for your diary

Summer 2010. Ditching day, South Cerney

Sixteen members have registered for the ditching, life rafts, and sea safety course organised by the spring meeting speaker, Del Hall, CEO of ***Survival Equipment Services***. The 10 July date was fully booked by ***PPL/IR Europe*** members attending. The three subsequent dates in August, September and October are also well subscribed (not yet fully booked) by members. Expressions of interest with preferred dates please to Steve Dunnett (dunnett@cf.ac.uk), also see website under Events.

11th-13th September 2010, Social weekend LSGC, Switzerland

A visit to Les Eplatures LSGC in the Swiss Jura, with accommodation at the Hotel des Endroits is arranged for Saturday to Monday, with a coach tour on Sunday to include the ***Musée International d'Horlogerie*** in La Chaux-de-Fonds and the ***Clin d'Ailes*** military aviation museum at the nearby Payerne airfield. The meeting is hosted by members Sker de Salis and Jean-Michel Karr. 22 bookings so far received (of a max 35). Please see website for full details and booking arrangements.

12th October 2010. AAIB members visit

The visit is still fully booked, but currently no one on the waiting list

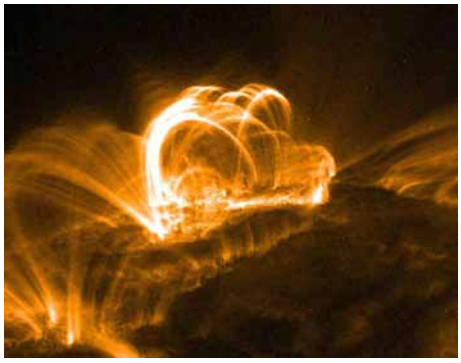
27th Oct 2010, Visit to NATS LACC Swanwick

Please see the website for details of this and a further proposed visit in 2011. VFR arrivals and taxis at Lee-on-Solent have been negotiated. IFR arrivals will need to plan for Bournemouth.

September 2011. Social weekend, Roskilde Denmark

Danish members Flemming and Kim Jensen, have agreed to host a social weekend in Denmark, based at Roskilde. Modern art (Louisiana), Viking ships, bog people, with øl (beer) and smorgasbord.

Solar storm troubles for GPS



Space scientists say that solar storms are on the rise and do cause problems for satellite-dependent systems like GPS and ADS-B. So, According to scientists at ***NASA's*** heliophysics division and ***NOAA's*** space weather prediction centre, the storms have temporarily shut down certain GPS capability and are likely to do it again. While that's not likely to happen very often, the challenge of predicting or identifying those moments (which can last days) and effectively communicating the threat to end-users (pilots) is not easily met. With more pilots relying on satellite-based systems during demanding modes of flight, the stakes are high.

GPS still needs a backup

ICAO's marine equivalent, the ***International Maritime Organization*** (IMO), has endorsed eLoran as the backup to GPS. This echoes the unanimous view of GPS industry leaders, who advocate eLoran as the best solution for all users. ***FAA*** and ***White House*** bureaucrats, however, decided against eLoran last year, apparently ignoring GPS experts and successful eLoran flight tests by the ***FAA Technical Centre***, as well as dismissing notions of embedding miniature eLoran chip backups in airborne GPS receivers to automatically take over–with RNP 0.3 accuracy. Ironically, as the IMO presented its report, the U.S. Coast Guard was busy dismantling the nation's loran/eLoran stations, worsening the IMO's fear of another ***Exxon Valdez***, or a cruise ship accident, during a GPS outage. The FAA plans a three-day meeting to examine GPS backup candidates, with inertial and multitracking DME strong contenders. However, neither appears to meet the cost and low-level coverage needs of non-airline aviation or the terrestrial mobile and fixed infrastructure communities.

Wind farms disrupt radar

Wind farms in the U.S. could face airspace restrictions because tall wind turbines can cause interference with radar systems. 'Because the radar repeatedly sees this large return, the radar will not pick up actual aircraft in the same area,' said Nancy Kalinowski of the ***Federal Aviation Administration.*** Wind farms can also mimic storm activity on weather radar, according to Kalinowski.

Federal aviation and defence officials said a primary concern is that tall wind turbines can adversely affect radar systems, not only by physically blocking them but by generating interference.

The blades of a turbine spinning at 200 mph on a 400-foot-high stand will generate enough 'clutter' to mimic a Boeing 747

jetliner, said Nancy Kalinowski. 'The clutter that is created by wind turbines can result in a complete loss of primary radar detection above a wind farm.' On weather radar, the wind farms 'look remarkably like storm activity,' she said.

ADS-B debate continues

The *FAA* released a final rule dictating requirements for aircraft owners to operate in *NextGen's* ADS-B-required environment by 2020. The rule addresses ADS-B Out. The *FAA* has previously (in the NPRM) estimated that the total cost to equip GA aircraft from 2012 to 2035 could range anywhere from $1.2 to $4.5 billion. It now estimates the quantified benefit to the GA fleet at $200 million. According to the agency, 'The *FAA* fully acknowledges that the general aviation community will incur significant costs from this rule.' However, the *FAA* says this must be balanced against the system's overall benefits, which are expected to include hundreds of millions of gallons of fuel saved, and the realisation of other operational efficiencies.

The *FAA* says it considered three options to resolve GA's cost benefit concerns. Firstly, to lower costs for individual operators (general aviation pilots), the *FAA* has modified the systems' performance requirements and determined changes that eliminate the need for ADS-B antenna diversity. The *FAA* believes this will help make the rule cheaper to implement. Secondly, moving forward, the *FAA* 'intends to explore the costs and benefits' for service expansions that may include: more low altitude coverage, radar-like terminal ATC services at airports not currently served, automated closure of IFR flight plans, enhanced search and rescue, and providing FSS with ADS-B positional display information to allow for more tailored flight service functions. The third option considered was to limit ADS-B requirements to Class A and B airspace. This was dismissed because the *FAA* believes failure to equip all aircraft would greatly reduce the system's benefits. Numerous commentators expressed concern that the proposed rule would require GA operators to add costly equipment to their aircraft, while providing these operators with few benefits, and that GA aircraft do not substantially contribute to delays or congestion in the NAS. While so-called ADS-B 'out' will help the US *Federal Aviation Administration* in its plans to cut radar surveillance resources, namely radar, the benefits for operators are likely to be much greater if the equipment could also receive ADS-B data (ADS-B 'in'), allowing air traffic, weather and other flight planning information, to be accessed by aircraft in flight.

General Aviation going electric

Making general aviation more environmentally friendly has in the past had an alternate fuels focus, but as batteries improve, all-electric aircraft are emerging in Europe. From *Lange Aviation's Antares* 20E in 2005 to this year's new entrant, the *PC-Aero Elektra One*, there is a growing European challenge to the likes of China's *Yuneec* and its E430 model that already has a sales office in the UK. Recently German company, *PC-Aero*, unveiled its battery-powered *Elektra One* at the *Aero Friedrichshafen* air show with the goal of having it fly by June and go on sale later this year. The single-pilot *Elektra One* follows Chinese company's *Yuneec* battery-powered E430 two-seater light sport aircraft, which flew in California last year.

As an all-battery electric two-seater that has already flown, it is a *de facto* market leader that Europeans need to challenge. According to *Yuneec* the E430 uses three lithium polymer (li-poly) battery packs to fly for 2 hours in an 'optimum cruise' with two people on board. By increasing the battery packs to five, a single pilot can get 3 hours of flying time. Presented at Oshkosh last year, *Yuneec's* first prototype E430 undertook 22 hours of flying in Camarillo, California to be awarded its experimental certificate by the US *Federal Aviation Administration* so it could be demonstrated at the air show. Today *Yuneec* is aiming to sell its E430 from mid-2011.

In the near term *PC-Aero* has one advantage for its one- and two-seaters. Europe already has a certificated electric engine under its CS22 part h rule. The electric engine was certificated for *Zweibrücken*, Germany-based *Lange Aviation's Antares* 20E motor glider. The 20E's electric engine has been certificated by the *European Aviation Safety Agency* for the very light aircraft class, which has a maximum mass of 750kg and can carry two people. Since the start of production in 2005 the company has sold 72 Antares 20E motor gliders.

First Algae-powered Airplane Takes To the Skies

EADS flew the first aircraft powered solely by algae-based biofuel at the ILA Airshow in Berlin as part of the daily flying display. The Austrian-built *Diamond Aircraft* DA-42 NG's two *Austro Engine* AE300 diesels required only minor adjustment to burn the biofuel, which is supplied by German processor *VTS* from algae oil provided by *Biocombustibles del Chibut* in Argentina. The aircraft's fuel consumption was 1.5 litres per hour less than that for a similar aircraft powered by standard jet-A, because the algae fuel has a higher energy content. 'Our pure biofuel flight from algae is a world first and an exciting milestone in our research at *EADS*,' said Dr. Jean Botti, the company's chief technical officer. 'This opens up the feasibility of carbon-neutral flights.' Exhaust gas measurements show that the algae-derived fuel contains one-eighth the hydrocarbons of kerosene, and greatly reduced nitrogen oxide and sulphur oxides as a result of the new fuel's low nitrogen and sulphur content. Considered among the feedstocks with the greatest potential for widespread use, algae grows rapidly and its cultivation does not compete with food production since it can be farmed on non-arable land using non-potable water or even salt water. While the current cost of biofuels is much greater than that of fossil fuels, research and development programs are aimed at establishing cost-effective mass production.

Replacing 100LL

The development of advanced engines capable of running on unleaded fuel for aircraft is hampered mainly by the low production numbers, thereby failing to repay development costs. Unlike the hundreds of thousands of automotive engines produced, manufacturers would have to recoup their investment with only a few hundred aero-engines. Therefore, the focus is more on finding a fuel replacement to leaded 100LL to run in old legacy engines, mostly of the *Continental* and *Lycoming* type. *Continental* is moving forward with its research to pitch 94UL as a replacement for 100LL avgas, which the *Environmental Protection Agency* (EPA) seems serious about regulating out of existence. At the *Mobile* company's Alabama test centre, *TCM* is running detonation tests of 94UL, essentially 100LL without the tetraethyl lead added as an octane enhancer. They claim that engines certified to operate on 80/87 octane will have no trouble

making rated power with 95UL. Similarly, says ***Continental***, even its higher power turbocharged large displacement, low-compression ratio engines can run on the lower octane. The problem engines are higher compression variants that use 8.5 to 1 compression ratios. ***Lycoming***, on the other hand, calls 94UL a big mistake that could cost the industry billions in lost business. They believe that owners and operators are the ones most at risk and that most don't understand how significantly performance will be reduced or restricted by 94-octane fuel. 'If people really understood what's going on today, they would understand that we need to set the objective at 100 octane fuel' a ***Lycoming*** representative said.

First *Next-Gen* satellite launched

As a Delta 4 rocket blasts off with the GPS 2F-1 navigation satellite aboard for the U.S. military and civilian services, the first of an advanced new fleet of navigation satellites for the U.S. Air Force soars into space. GPS 2F-1 lifted off after a week of delays due to bad weather and technical issues. It is the first of a planned fleet of 12 new satellites to provide around-the-clock navigation, ultra-precise navigation and timing services for military and civilian usage. These next-generation satellites provide improved accuracy through advanced atomic clocks, a more jam-resistant military signal and a longer design life than earlier GPS satellites, plus a new civil signal that benefits aviation safety and search-and-rescue efforts. The new GPS 2F-1 is a solar-powered satellite designed for a 12-year mission. It has twice the signal accuracy of previous navigation satellites and is equipped with a new signal capability for more robust civilian and commercial aviation applications.

Aeroplanes can trigger snowfall

When conditions are right, a jet or turboprop aeroplane travelling through a cloud can cause it to snow, according to a study by the ***American Meteorological Society***. Aeroplanes that penetrate altocumulus clouds containing supercooled droplets of water can cause some of the moisture to freeze and fall to the ground, leaving holes or channels in the clouds. 'Just by flying an airplane through these clouds, you could produce as much precipitation as with seeding materials along the same path in the cloud,' said Andrew Heymsfield, a scientist with the ***National Center for Atmospheric Research*** (NCAR) and lead author of the study. As air is forced over the wings or the tips of propellers, its temperature falls, causing the droplets to form. The Pacific Northwest and western Europe often experience weather systems that are susceptible to this kind of event.

Daher Socata announces TB20 G500 upgrade

Daher Socata has obtained a European STC (Supplemental Type Certificate) enabling the TB20 series of aeroplanes to be retrofitted with Garmin's G500 glass cockpit. The twin screen installation features a 6.5 inch MFD and PFD. Optional extras include Garmin's GAD43 autopilot interface and a customised version of its SVT (***Synthetic Vision Technology***).

FAA says 'replace old mufflers'

If the exhaust silencer (muffler) on your reciprocating aircraft engine is more than 1,000 hours old, you should replace it to help minimize the chance of getting carbon monoxide in the cockpit, according

to a Special Airworthiness Information Bulletin released by the ***FAA***. A further recommendation is that CO leakage tests should form part of 100 hour checks, using a hand-held CO detector in the cockpit during engine run-ups with cockpit heating turned on. The ***FAA*** based its recommendations, which are not mandatory, on the results of a technical study by ***Wichita State University*** that was completed last year '*Detection and Prevention of Carbon Monoxide Exposure in General Aviation Aircraft*'. The researchers surveyed accident data from the ***NTSB*** and found that when CO was a factor, the exhaust silencer was the top source. In 92 percent of the exhaust-related accidents, the exhaust silencer had been in service for more than 1,000 hours. Diesel-powered engines are not affected by this recommendation because that combustion process produces hardly any excess CO.

The reporters also surveyed a wide variety of types and brands of CO detector to determine those most effective for use in light aircraft. Limited field testing concluded that electrochemical types, mounted on the instrument panel, were best suited. The complete report, including the performance figures for each of the 43 brands/types of detector, is available at: www.tc.faa.gov (search for ar0949.pdf.)

Alternative generator

Cessna has applied for a US patent for a module that attaches to a turbofan engine to provide electrical power to aircraft systems, eliminating the need for traditional geared power generators.

The module adds a free-spinning turbine wheel to an engine specifically installed to spin up a generator to supply electrical, hydraulic, or other power varieties to an aircraft. Engineers say the device would be able to run at a constant speed using variable pitch stator vanes just ahead of the turbine. From a maintenance perspective, ***Cessna*** says the unit would attach the engine as an independent low-pressure

turbine (LPT) module, but that it would not affect the balance of the existing LPT since the two are not connected via a shaft. ***Cessna*** says the idea is beneficial for many reasons, including that an optimised free-turbine generator will cost and weigh less than a conventional spool-connected generator arrangement, which requires the combination of a generator and an accessory gearbox.

Part of the weight savings comes because there is no need for a power conditioning unit since the free-turbine generator spins at a constant speed and thereby outputs nearly constant power. The company also says the new design, which would be available as a retrofit or forward-fit option, can provide significantly more electrical power than generators attached to either the high- or low-pressure spools.

TBR extended for *Thielert's Centurion 2.0* Diesel engines

Centurion has just announced an increase in TBR (Time Between Replacement) for its 2.0 Jet A fuelled engine. This extension eliminates the requirement for the engine to be removed from the airframe and returned to the factory for an inspection at 1,200 hours, reducing both cost and time on the ground. The new TBR is 1,500 hours and ***Centurion*** plans to further extend time in service to 1,800 hours. 1,200-hour inspection can now be conducted at all of the 300 plus authorised ***Centurion*** service centres, removing the need to have the inspection done at the German factory premises. At present, over 2,600 ***Centurion*** engines are operational in various aircraft types, and have successfully completed more than two million flight hours.

Europe warming to aftermarket parts system

While aftermarket ***FAA***-approved aircraft parts made by companies holding ***FAA*** Parts Manufacturer Approval (PMA) are common in the U.S., there is no PMA equivalent for companies in the rest of the world that want to manufacture aircraft parts outside the sanction of OEMs. Jason Dickstein, president of the Modification and ***Replacement Parts Association*** (Marpa), recently met with ***EASA*** officials to discuss European support for aftermarket parts manufacturing. According to ***Marpa***, ***EASA*** had considered creating new rules to allow PMA-like manufacturing in Europe, but 'this idea has been abandoned in favour of working within the existing regulatory framework'. A stumbling block, however according to ***Marpa***, is that current ***EASA*** rules appear to require recertification of the entire aircraft for any kind of aftermarket-manufactured part, even if that part has no effect on most systems or airworthiness of the aircraft. However, EASA is looking at guidance that would interpret existing regulations to allow a more reasonable way of proving that an aftermarket part is safe. 'We had a productive discussion with ***EASA***, and we are looking forward to continuing our discussions', Dickstein reported.

Filton to close at weekends from August

Following a review of operations, Filton Airport Manager Alan Haile has written to GA residents informing them of the decision to close the airfield during weekends and bank holidays from August 2nd. Although Filton will remain open during weekdays from 06.30 until 20.30, the unavailability of the facility at weekends will almost certainly mean that most residents will relocate.

Eurocontrol Close To Approving ETS Support Facility

Eurocontrol appears to be close to approving the funding and development of its emissions trading scheme (ETS) support facility, which would give business aircraft operators a relatively cost-effective way of meeting their obligations to monitor, report and verify carbon dioxide (CO2) emissions. A meeting of the air traffic management agency's air navigation services board expressed support for the plan but deferred a final decision pending further negotiations to allay the concerns of ***Eurocontrol*** member state Ukraine. The ***European Business Aviation Association*** (EBAA) expects the ETS support facility to get the final go-ahead. ***EBAA*** said that, without the ETS support facility, it would be completely unworkable for 'small emitters' such as business aviation operators to comply with the complex requirements of ETS. In these circumstances, ***EBAA*** threatened to advise operators to withdraw cooperation from the program and, effectively, refuse to comply. The support facility is effectively a tool that provides an easy way to calculate CO2 emissions and, since the data is drawn from ***Eurocontrol's*** flight-plan database, there should be no need to pay to have it independently verified.

Remote black box

Canada's ***Star Navigation Systems Group Ltd***. has created ***TerraStar***, a real-time in-flight safety monitoring system that could make the post-crash search for cockpit voice and flight data recorders obsolete. ***TerraStar*** tracks, and can continuously encrypt and transmit to ground-based monitoring systems, up to 18,000-plus aircraft parameters per minute. The system filters 'out of spec' indications as 'alert notifications' which are prioritised in remote aircraft monitoring data feeds that can be accessed in real time, online. In practice, it means that operators on the ground could know about problems with an aircraft before the plane's pilots or air traffic controllers observe any symptoms. The company believes that capability could not only vastly improve scheduling and maintenance, but also provide operators with the necessary data to break some accident chains before the crash. And, in the case of ***Air France*** 447 and the recent ***Air India*** crash, it could have provided more information to investigators, immediately, says the company.

New owner for Coventry Airport

Patriot Aerospace has acquired Coventry Airport. A statement from ***Patriot***, which is part of Sir Peter Rigby's aviation group, explained, 'The strategic acquisition will create a vibrant, commercial regional hub for general aviation, including leisure, business and freight; with passenger flights amongst possible future plans, alongside creating more jobs'

Reflections on nearly ten years of involvement with *PPL/IR Europe*

By Paul Draper

Your outgoing ***Instrument Pilot*** editor, David Earle, has asked me to give a resume of my time of involvement in ***PPL/IR Europe*** now that I have recently stood down as a member of the Executive.

I first became involved as Secretary in 2001 and I quote three extracts from my report of the 2002 AGM:

*Some 51 members (23 of whom arrived in 10 aircraft) attended the AGM on Saturday 16th March kindly hosted at **Shipping and Airlines** hangar at Biggin Hill. Last year at Southend I was elected Secretary (my first involvement with the Committee) but this year I was elected Chairman which might lead me to think perhaps I should not attend next year for fear of what might happen then!*

*After a splendid lunch we were treated to a talk by Rod Dean, Head of General Aviation at the **CAA**. He spoke about the responsibilities of his department and of his personal views on the future for GA. He particularly emphasised the need for GA to get together to speak to the various authorities with 'one voice' to ensure we are heard. We in **PPL/IR Europe** very much take this on board and are progressing on those lines already.*

*Finally I would comment that we IR pilots have a testing and challenging time ahead. The legislation continues to pour out from those that control our activities in the sky. On the horizon are such matters as the new **EASA** authority, **Eurocontrol** proposals for changing airspace and some form of charging perhaps applying to all categories of aircraft, Mode S / transponders/ADSB, 8.33 MHz radios being required at lower levels, RNAV/GPS ditto.*

So, not much has changed, you might think, but you would be wrong! Yes, the principles of our having a challenging and testing time ahead continue, but we have made much progress in the intervening years in that we are now a recognised voice for PPL/IR pilots in both the UK and Europe. This means we are part of the consultation process. In this role, we continue to contribute to many of the committees and groups that deal with GA. Aviation is full of acronyms! We are members of ***DfT SES*** (Single European Sky) and ***ATM*** (Air Traffic Management) Forums, the ***CAA's NATMAC*** (National Air Traffic Management Committee), ***AIWG*** (Airspace Infringement Working Group), ***GACC*** (General Aviation Consultative Committee), ***NATS*** GA Partnership and London TMA airspace review group, the ***GAA*** (General Aviation Alliance - founder members) via which, *inter alia*, we give advice to the ***PAG*** (Parliamentary Aviators Group) and the ***EAS*** (Europe Air Sports). As a result of our involvement with the ***EAS***, we have been members of ***EASA*** (European Aviation Safety Authority) working groups on pilot licensing and airspace proposals, and have represented the ***RAeC*** (Royal Aero Club) on ***EPFU*** (European Powered Flying Union). This is to name the main ones, but not all, and we have made many submissions to both UK and European Government on such matters as the workings of the ***CAA***, and the future of GA- plus dealing with many other ad hoc working groups!

Does it all matter as we make our ways through the skies? Well, I think it very much does. My years of involvement have shown me that the well funded airline lobby has continually tried to keep us out of 'their' airspace and the regulators have, through lack of knowledge of our type of operations, tended to ask too much of us in operational and equipment terms, much of which has been to enable CAT to operate more effectively. Without our involvement it is likely we would face even more draconian requirements for kitting out our aircraft and for operations in the airways.

So where to now? Apart from all the other ongoing issues, the issue most likely to affect us as IR pilots is, I believe, the ***SESAR*** (Single European Sky ATM Research) programme. Now formed as a 'Joint Undertaking,' it aims to:

- Restructure European airspace as a function of air traffic flows
- Create additional capacity, and
- Increase the overall efficiency of the air traffic management system

This is bound to affect us. I went to the early presentations on this proposal and was the only GA representative present. At later meetings there were one or two others. ***AOPA*** then managed to commit money to deal with a 'work package' involving some GA aspects and that is still on-going; indeed they may ask for our help on this. Unfortunately I gained the real impression that ***SESAR*** was merely patting GA on the head when I asked some basic questions about our position as IR pilots. There are billions of Euros of work being pitched for by the industry and it cannot now be stopped. We need to keep this programme in focus and ensure GA and IR pilots are not left out of the thinking.

So was my involvement worth it for me and for you? Yes, I think so for me and I hope so for you. It has been very time consuming, but I have met many interesting people and learned a lot from a standing start! There was much travel (mostly regrettably not in my aircraft!) and much frustration too in dealing with some intransigent organisations and people. There was however also much co-operation from many, including, I am glad to say, the ***CAA*** about whom one hears so many complaints. We, as ***PPL/IR Europe*** are now much more widely recognised, and indeed respected, in both the UK and Europe; I believe we punch way above our weight.

What now for me? Well, I have agreed to continue to be involved in the proposed review of the Civil Aviation Act 1982 (via ***GAA***), which will help shape the regulatory process in the UK in future and which obviously has to have regard to the European scene. Other than that, an emerging new garden beckons and in theory I have more time to do some things that have had to be on the back burner' for around eight years! Oh, and the ***BGA*** has recently asked me to be involved in something.....

David Earle has taken on many of my former tasks and I wish him well.

◀ P 1 one some years before and killed himself. A stone wall runs the complete width of the runway at its end, separating it from the road beyond. I think he had landed long, and then rolled for a while before commencing the go-around and failed to clear the wall.

Now the psychological battle began. The runway appeared visually to be much narrower than had been indicated in the documentation. The prominent tarmac section must only be 20 or so feet across. The runway also rises in the landing direction. Night was approaching as landings earlier in the day are precluded due to very strong cross winds. Finally, since we knew Ragusa did not have Avgas, we had refuelled and were coming in relatively heavy. I approached very slowly to ensure a first time full stop landing, and as soon as I got across the line with the stall warner starting to sound I 'dumped' the aircraft down. It was not my tidiest landing, but I had my wife, child and another passenger to consider. I was **not** going to do a go - around. The narrow width produced a very strange visual perspective on landing, but in reality we were fine. I could have easily performed a normal landing (it's as long as my home airfield), but the psychological pressure had been enormous. I had never felt this before and am probably a better pilot because of it, but the pressure was un-necessary. When as pilots we discussed it later, we felt the briefing had reduced rather than enhanced our safety. The other flying pilot had approached normally and had been disturbed by the visual narrowness. With 'If it does not look correct - then go-around early' stuck in his mind he did a low go-around (not touch and go). Fortunately he was able to climb faster than the runway, but not by a massive margin, which demonstrated how hard a touch and go would have been. The extra worry had actually made us both hyper-sensitive to what we were seeing, when in normal circumstances we would have been fine. I have landed on fields much shorter than Ragusa. The briefing was correct, but the learning point for me was the need to be careful how we build a mental picture of the information we receive. The manager had been accurate and was clearly concerned, but speaking limited English, he had unwittingly constructed an impression that did not enhance safety. He himself flies a turbo 206 out of the strip and is a very nice guy who clearly feels personally responsible for each of his guests, so perhaps shouldn't be criticised. However we had taken all of his worries on board. The strip is in fact easy, and as he says, go-around early if it clearly looks wrong. Scanning the whole width of the strip, not just the tarmac, would also help.

The only mistake we made was not to go into Old Town Ragusa earlier

We were all very relieved to be on the ground and the best bit of the hotel (for us pilots) was now ahead - the taxi and parking of the aircraft outside our rooms. The rooms themselves are comfortable and charming, but also at a reasonable distance from the hotel (which is owned by the father of the guy who manages the strip). Walking takes about 5-8 minutes. Bicycles are also provided for transport and are very useful. Two of our number stayed in the hotel itself, as one still had an injured foot. The hotel is a lovely place and I would recommend it. Dining out in the garden by the pool is simply wonderful and the food quite reasonable. It is a must at least once during your visit - not Michelin but definitely refined. However whilst we were there the service was very variable and getting room service to the cottages was slow. The beer and coke were expensive at €8 and €5 respectively, but this is Italy and we were in a five star hotel. The only mistake we made was not to go into Old Town Ragusa earlier. It is a beautiful and charming place full of very good restaurants ranging from simple to top class. One of the best visits we made was to a rustic restaurant with basic Sicilian food at very sensible prices. If you hire a car don't be fooled into confusing Ragusa with the Old Ragusa - they are chalk and cheese.

Malta for lunch anyone?

Ragusa does apparently sometimes have Avgas if you phone ahead well in advance and reserve some. As it was, some of the aircraft with us could not make it back to Sardinia with sufficient reserves, so we planned to re-fuel at Malta as recommended by the airport manager. For this leg we routed DCT DIRKA DCT GZO. This was the only VFR flight of the whole trip and is essentially a simple route avoiding some military airspace and then a straight line down to Malta (Gozo). Leaving Ragusa is always a departure on the downhill runway. It was mid morning, so we had a slight crosswind (all without any worry). Once talking to Malta approach, we gained permission to climb and enter controlled airspace direct to GOZO. As we approached, we were vectored off to fly an orbit of Gozo island. 'No problem', I thought, as I had heard an IFR arrival. 'As soon as they are on short final we would be cleared back in'. It took us a while to suss that we had been sent us to Gozo for un-solicited sightseeing and left flying around. Our fellow aviators had been explicitly offered a 'Coastal route excursion' when arriving at the Maltese coast, but they had not realised what ATC were offering and came directly in without a scenic view of the island. On becoming bored orbiting Gozo (also a beautiful island), I was offered the ILS procedure which I happily took despite being VFR. The procedure seems to be to back track everyone on the runway and we taxied to the parking area a long way from the terminal.

Handling is mandatory at Malta and we used Air Malta as had been recommended to us. A nice man appeared to talk about our needs for fuel etc. which because of lunch was arranged for our return. I was chauffeured in his van around to do all the paperwork and pay the bills for both aircraft, whilst the others waited for their transport - a full sized airport bus normally associated with a hundreds of passengers. Everyone was most amused. I went first taken to Air Malta to say 'hello' and pay the handling fee €69.90 for my aircraft, and then to the airport services to pay the landing and parking fees (short stay) €4.47 plus a passengers service fee of €56.85 (3 passengers). I suspect this paid for the bus! The airport services office is just by the terminal entrance so as I walked out I could witness the amusing sight of 4 people and no luggage using the largest airport bus available.

A couple of days previously, I had texted a friend of mine who is Maltese for advice on where to go for lunch. Luckily for me, she was in town on holiday from England! Having recently moved very near to me in the U.K., and having met up on a previous occasion in Japan, we joked that we see more of each other travelling than we do locally. We arranged to meet up on one of the squares in the port area of Valetta which is a beautiful and historic part of the island in a cafe famous locally for its cakes. Once refreshed, our entire party then had a walk around the area before returning to the airport by taxi (I now have the driver's entire life story, but that's another book). Malta is a pretty island and offers a lot for a short break. I think a long weekend would be about right. Just stopping for lunch was a bit too short.

Departing Malta was not quite hitch free. We had phoned through to the handlers to meet us in the main terminal. Our handler then collected us and routed us round all of the queues, by way of P 20 ▶

◀ P 19 an interesting conversation with an un-amused military looking fellow. He got us through very quickly upon presenting our passports, and we were able to make use of the facilities before boarding our private bus back to the aircraft. The refuellers had been arranged to meet us at the aircraft, and provided Avgas at €1.33 per litre. We paid cash to speed the process - cards were accepted back in the office. I checked out the aircraft and went to activate my flight plan with a 'request for start', at which point ATC explained that they had no immigration clearance for us. Apparently our 'short cut' earlier in the process had meant the guy who let us through had not sent the requisite info to them! ATC did their best to prevent us having to return to the terminal, and after a 15 minute delay gave us clearance to start and depart for Olbia (Sardinia). I don't believe they get much GA visiting them but they were extremely helpful and friendly. Don't be in a rush when paying - they will all want to say hello. If you are down that way Malta is definitely worth a visit.

Ragusa

The journey home

We now retraced our steps. The leg to Olbia was an ordinary trip made slightly more interesting by the Stormscope being quite active. Because of our altitude we were on top all of this, but had concerns for our VFR counterparts down below, especially since the winds were quite strong and might eat into their reserves. As it happened they were blissfully unaware of the weather, and although concerned about the flight time had an uneventful journey.

We stopped another night in Sardinia, this time in Olbia itself, and just relaxed in the hotel complex. Everyone was feeling relatively exhausted at this time. The weather in France was starting to turn, so we all planned to try and reach Avignon instead of Marseille. This would put us in a better fuel position to get back the day after that. One of our party had to be back for the weekend, so were keen to make as much progress as possible.

On arrival at Avignon, I was put in the hold – the first real one since my initial IR test! This time I could use the GPS/OBS mode rather than that antiquated ADF nonsense. The hold was just in cloud and it was good practice for me. Once the other IFR traffic was clear I was then given the ILS procedure. Amusingly one of my fellow VFR flyers arrived as I left the hold, and was given a visual approach in front of me. I was asked to approach at minimum safe speed to allow him to land. Oh well, VFR has to have some benefits!

Back in one hop

The weather was progressively getting worse over France, and the wind was becoming much stronger. Avignon was a lovely place and

Aircraft parking at the hotel Eremo della Giubiliana

we were therefore not in a rush. We considered staying another night, but given the forecast decided to fly all the way back in one hop. One of our party opted to leave early, stop for fuel in the north and then brave the strong winds and murky weather back to Denham. They made it back safely. The other VFR pilot opted for an intermediate stop, and was weathered in for a few days. His aircraft is slower and lighter and it would have been very uncomfortable flying further north.

Our flight back was one of the few times I have had to climb out of weather. Originally I filed for FL90. Shortly after takeoff I found I was level with the tops and occasionally hitting turbulence so I requested a climb to FL100 just above the clouds. We were experiencing some 50 plus knots of headwind at this point and being on top made it a lot more comfortable. Midway through France the cloud tops were higher, and I requested a further climb. There was a small delay as this required a slight re-routing, but soon a clearance to FL110 was given and I climbed completely above the clouds I did find climbing with MTOW at that altitude slow, especially since there seemed to be a slight downdraft. The autopilot struggled with this, and I hand flew this period with no further problems. As we approached the Channel I was brought down to be at FL60 by DET. We had been battling headwinds of 60+knots at this time. I had got my European/UK times muddled and started to worry I would be arriving after Denham had closed as this trip was taking over 5hours. I am really glad I always plan conservatively and still had lots of fuel left! I must say that Thames Radar and Farnborough give an excellent service to pilots arriving over this part of London, especially when the weather is poor. We finally landed just before 7pm local with minimum hassle. We were met by customs for the first time ever, just to check passports and passenger list against the GAR form. This is now happening on every foreign flight I do, so they seem to be getting hotter, although some say it is because they like the new cafe (sorry 'crew room').

Having completed some 2500 nm and 25 hours of IFR flight time in a single trip I can truly say getting my IR was all worth it. Although this trip could be flown VFR (as proved by my companions), the comfort and ease of planning that IFR afforded made the trip much more relaxed and comfortable with the family on-board. It also unexpectedly saved a huge amount on fuel costs. It is a closely guarded secret that IFR flying and planning is much, much easier and less work than VFR - especially in unfamiliar territory. If you have not started yours yet - go enrol now! I also owe a debt of gratitude to Mike Flynn for FlightPlanPro - thank you Mike.