Instrument Pilot

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Ditching

By Jim Thorpe

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PPL/IR EUROPE

For a long time I have been carrying a dinghy on all over-water trips in spite of a strong suspicion that it would be impossible to deploy it. The problem is that, though the Bonanza has lots of room and several exits in the cabin in the front, it only has a single door on the P2 side. There are high seat backs and a none too wide cabin. There is thus no possibility of relocating the dinghy into the front prior to any crash since it would obstruct the controls. Also I had little faith that it would be possible to get the heavy and bulky four-man raft over the seat backs while desperately trying to exit a sinking aircraft. It seems amazing to me that although the vast majority of light aircraft fly with one or two people the smallest raft size is for four. I have made some effort to investigate this and the one company who advertise offering a two-man raft refused to make one for me citing insufficient demand!

Importance of a 406 beacon

I have gone to the trouble of fitting a 406 ELT to stay legal. While this may be helpful in a crash in a remote region it is obviously going to be useless in the most likely scenario in Europe which is a ditching. The RAF survival advice is that if you aren't wearing it you won't have it and I find this advice quite compelling. I have a GPS enabled 406 PLB since evidence suggests that an accurate location is the single most significant factor in surviving a ditching. I would suggest you take care in choosing the right model. Apparently some brands don't work too well when wet (see www.equippedtosurvive.com). The problem is how to ensure that the PLB exits the aircraft with you. It's a bit too large to fit in a pocket and the obvious thing to do would be to attach it to your life jacket.

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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

Chairman's corner

By Anthony Bowles

Insurance

A few days ago, Ian Chandler (Secretary/Treasurer) and I had a meeting with Tim Proctor of Hayward Aviation Ltd (insurance brokers) and three people from one of the major players in the GA insurance market. The meeting arose out of a suggestion that ***PPL/IR Europe*** members were more experienced and qualified than the average PPL and were thus better risks and should attract lower premiums from underwriters. It was a useful initial discussion: the underwriters would like more detailed information on qualifications, aircraft types flown and hours on type to help formulate their proposals. They are preparing a survey questionnaire which we envisage will be posted on our web site in a few weeks time. Further details should be in the next edition of ***Instrument Pilot*** - the aim is for a multiple choice answers type format which should enable completion by members without taking up too much time.

I also raised the question of extending normal geographical coverage for more adventurous trips. I know this has proved a particular difficulty recently for one member. I explained that a small percentage of our members - and usually the most experienced - do wish to undertake the occasional extended trip abroad. While it was recognised in underwriting terms that this increased risk and justified an additional premium, it was unacceptable to be told that such insurance was simply not available on any terms, particularly as there are companies prepared to underwrite such risks. We will need to ensure that the questionnaire covers this issue.

While on the subject of adventurous flying, four of our more intrepid members have just arrived in Anchorage from far eastern Russia on their round the world trip which started in Austria in early July. Hopefully, on their return, one or more may be persuaded to write up their experiences for ***Instrument Pilot***.

PPL/IR Europe Cognac weekend – July 2009

Judith Niechcial

The valley of the river Charente is beautiful and peaceful with rolling fields of tournesols (sunflowers), maize and, more importantly, the vines which produce the white 'eau de vie' which is aged in oak barrels and turned into Cognac.

Local ***PPL/IR Europe*** member, Dutchman and Charente resident, Willem van Rijk together with Steve Dunnett had put together a superb programme for the weekend, incorporating extensive cognac tastings in a small family undertaking as well as in the huge Hennessy warehouses. We all came away much the wiser, and somewhat the poorer, from our visits although I think no-one was tempted by a bottle of Hennessy Paradis at over 900 euros per bottle!

Angoulême, LFBU

The airport at Cognac itself is strictly military, so our airport of arrival was nearby Angoulême (LFBU), with full IFR procedures, a runway clearly visible from miles away and a group of burly 'sapeurs pompiers' to dispense litre after litre of Avgas to our thirsty planes.

Bernard Gauthier and Willem van Rijk at Bernard's distillery

The official assembly time was mid-day on Saturday but a group of early birds chose to arrive on the Friday and were able to relax on the terrace, in the pool and in the comfortable rooms of the hotel Château de l'Yeuse. We returned to the airport next day to meet the others and have lunch before setting off on the Cognac coach tour in hot sunshine. We were a large group, with eleven planes, several of which had four POB and we completely filled the hotel terrace for dinner under parasols on Saturday evening. Members had flown from as far away as Liverpool, Dublin and Jersey.

Group photo at Bernard Gauthier's distillery

Sunday morning was taken up with a visit to the 'plateau' or old town of Angoulême itself, with views over the Charente from the ramparts, and another group meal in 'Tour de Valois' restaurant in a 15th century building near the covered market.

Tasting the eau de vie at Hennessy's

Departure in the heat of mid-afternoon was smoothly accomplished, with the tower staffed especially for us.

Preparing for departure at Angoulême

Photos by Sally Turner

Going for the airways

To fly is to travel

By Jon Rivers

Talk to a handful of private pilots and you will probably discover five different motivations behind their flying. There are those who desire a career as a jet jockey, with the salary and prestige that that attracts, not to mention the opposite sex, or even the same sex! For others it could be the purest joy in a freedom previously only known to birds and bats. Perhaps it is the opportunity to cartwheel through the air in aerobatic ecstasy. For some maybe it is a pure intellectual challenge, to deal with the exigencies that are essential to efficiently employ this most unnatural of human elements.

To fly is to travel

For me though the reason for flying has always been travel: I simply wish to cast off the shackles of public transport, and no longer wish to queue at airports. Not for me the lottery of finding out if I am to sit next to someone who will tell me 'confidential like' of her gall bladder operation for several hours en route. I could continue as over the years I have sat with them all and if my immune system has benefited from the experience that is all. I can therefore claim that my main actuator in learning to fly is an extreme snobbery. I like to be free to travel when I want to, with whom I like.

Imagine my consternation then, after completing a PPL, to discover that its privileges are so hedged about by expedients: weather, airspace restrictions, my own inability to fly in the clouds that seem always to adhere to the British Isles, and of course the availability of aircraft. I dealt with the latter by purchasing an aeroplane.

Next an instrument rating

Next I decided to equip myself with an instrument rating. I had heard that an IR from the Feds in America was not much more difficult than the IMC rating that I already had, and armed with this misinformation, I presented myself to *American Flight Training* in Norwich, whose principal was Tom Hughston. He soon disabused me of any such notion. I can tell those of you who have yet to discover this, that the FAA IR is a very serious commitment both in terms of the written examination, and the subsequent flight training and test. The main difference to its counterpart in the JAR is that it requires only one written examination, whereas the JAR requirement is seven separate exams, covering Aircraft General Knowledge, Flight Performance and Planning, Human Performance & Limitations, Communications, Navigation, Air Law/ Operational Procedures and Meteorology. Eventually some 12 months later I emerged with an FAA IR. Was it worth it? You bet, flying my N-registered Arrow in the airways was fantastic. I was to discover that the whole panoply of restricted airspace and air traffic control simply existed to keep me safely away from harm and to waft me on my untroubled path to foreign destinations, and back, and never mind the rubbish weather.

Struck down in my prime

Then tragedy, perhaps it was hubris I can certainly be accused of that, I was struck down in my prime. Not an accident provoked by flying, but a horrible illness, meningitis, a rare and nightmare disease, the cause of many deaths and maimed survivors. For some reason I recovered and, desperate to fly, I re-applied for my FAA medical. They required a neurological survey, and that was that. No medical. I sold the Arrow. It is pertinent to point out that the FAA is regarded as very difficult when it comes to any malady that causes neurological symptoms.

The CAA finally took a different view and I was allowed a CAA medical certificate and later, while revalidating my IMC, I decided to go for the JAR instrument rating. I duly signed on at *Atlantic Flight Training* in Coventry, for a home study course, and hit the books. For many months I read, practised and did test papers, and after three visits to Gatwick I eventually emerged with the seven exams behind me. I am now in a position to declare which of the two written exam requirements of the FAA and JAR are more demanding. In terms of time and trouble the JAR is way ahead, only the most dedicated or obsessive individual should attempt this as a home study course along with a full time job; on the other hand I would say that the FAA written requirements are probably at least as severe, and due to the really tough oral examination on the test day, an applicant must really know their stuff. But the FAA syllabus is an achievable workload.

Things began to go right

I had assumed (wrongly) that once the written exams were behind me, the work towards the JAR IR check ride would be a pleasant if demanding diversion. I was totally wrong: the combination of the illness, the layoff and another few years made it a really heartbreaking struggle. I nearly gave it all up but - through *Cranfield Flight Training* and putting myself in the hands of David Coulson - the pleasure of flying, of learning and the familiar obscenities all flooded back, along with my confidence. Things began to go right.

My first check ride was not an unqualified success, but it was consistent; I failed every section! But I felt robbed, not dispirited, and with the benefit of another couple of flights, after the 170A, I took off from Cranfield again and passed.

It has been one hell of a fight, but the prize is worth it, to sit once again in the airways. I now fly a Turbo Saratoga, sipping coffee above all the weather and being vectored by polite controllers to airports where I have priority, listening with sympathy whilst VFR traffic is denied transit so that I can be ushered along. Yes, it is worth it. To arrive and depart at my own convenience, no garrulous seat companions, no dodgy meals, no unexplained delays…no toilets…Aargh! Pan pan pan!

And the final irony is that the FAA recanted and has allowed me a medical certificate after special consideration, so I am now the proud possessor of **two** instrument ratings!

Photo: Judith Niechcial

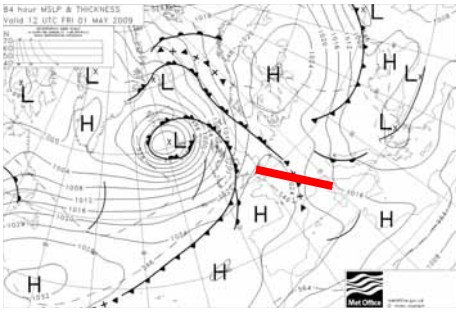
IFR weather planning

By Peter Holy

Part 2 of 2

The second part of this article begins by exploring the practical use of weather data in planning an IFR flight from Shoreham to Corsica. This involves a departure and arrival in relatively benign conditions and an enroute section which contains some IMC but is done - typically for IFR flight - VMC on top. The flight, on 1st May 2009 at around 1200Z, is from Shoreham (EGKA) to Bastia (LFKB).

In reality the flight would not be a straight line but an airways route would not be far enough off to matter for this purpose. The following weather snapshots were done around three days ahead of the flight date and were selected to represent a relatively common IFR flight scenario.



The first thing is to look at the MSLP chart which - with the route highlighted - most importantly shows nothing exciting at the two ends, and a somewhat half-baked cold front lying halfway along the route. One big question is: how bad will the conditions be where that front is lying?

We start with the Meteoblue cross section (http://my.meteoblue.com/my/) and the screen configuration shown top right.

Due to the peculiar way the software works, it is vital to select cloud cover and temperature as VARIABLE 1 and VARIABLE 2 respectively! The thin red line is dragged across the map to represent the straight-line track for this flight (shown as a white line here). Clicking on 'Make Map' produces the picture shown bottom right which looks reasonable relative to the MSLP chart. One needs to be a little careful here because that MSLP chart came from Avbrief (www.avbrief.com) and thus derives from the UK Met Office model, while everything else comes from the US Global Forecasting System (GFS) model. At short time ranges, and with clearly moving weather, the two normally agree reasonably but differences in timing, and thus the position of fronts etc., are common.

One can see that there will be some IMC to around FL100 (3,300m on left hand scale and 700mb on right hand scale). In this case, one would file for around FL150 which is within the capability of most reasonable IFR touring aircraft.

One should verify the above Meteoblue forecast, at relevant spots along the route by using another GFS site, my preferred one is NOAA (www.arl.noaa.gov/READYcmet.php). In the airport code, enter LFSD (which lies somewhere around where that front should be around 1200Z) and from the pull down menu which then appears, under the ***Soundings*** program, select GFS Model (0-84hrs).

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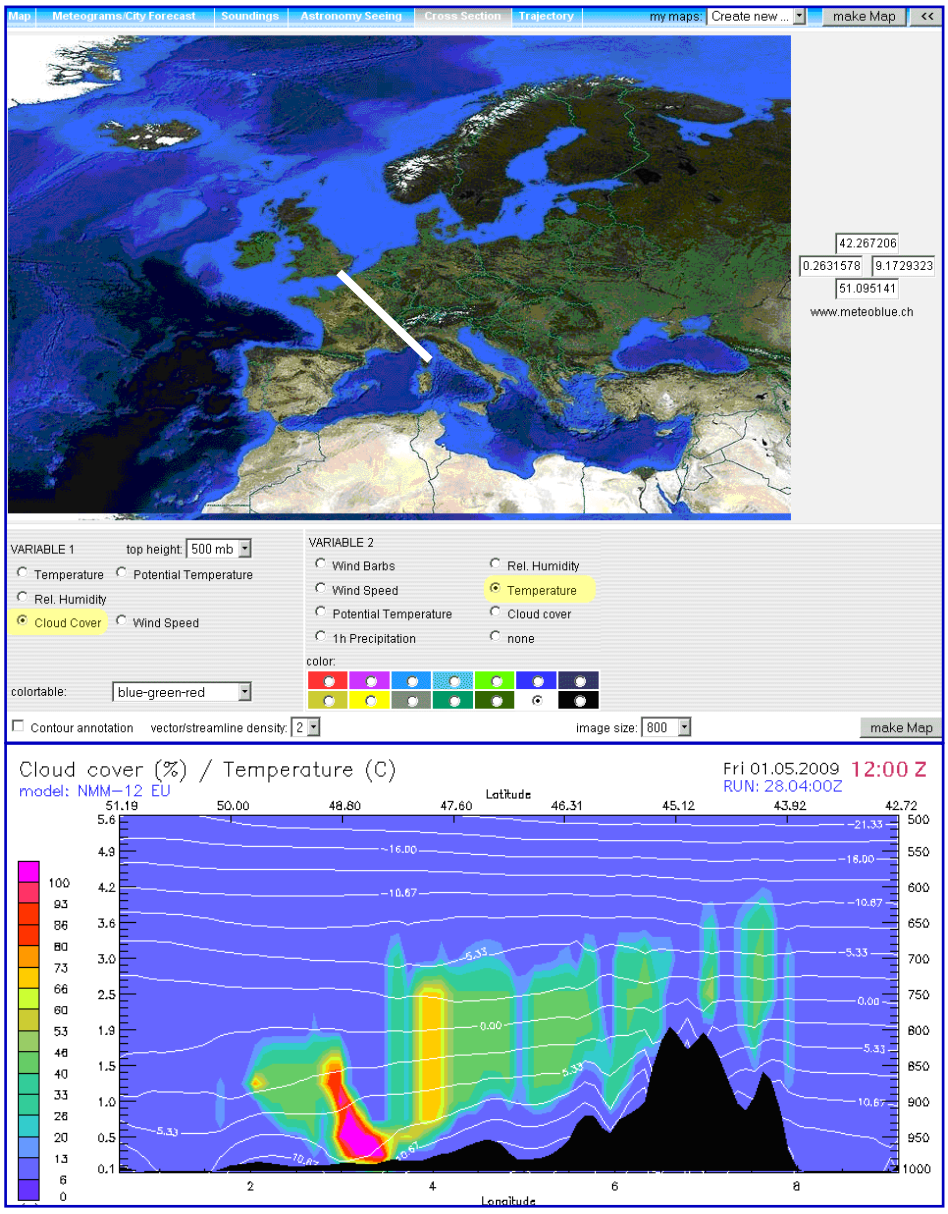

◀ P 5 This leads to the configuration screen for the GFS Sounding, shown top right, where you can select a 24 hour animated output commencing 0000Z on the day.

From the resulting animated output, the two least favourable tephigram snapshots are indeed around 1200Z as shown centre right.

The two lines are the dewpoint and the temperature, as indicated on the red temperature scale along the top and right of the chart. You can estimate IMC roughly according to the following rules using the temperature spacing between the two lines at any given altitude.

Less than 1°C	7-8 Oktas cloud
1-2°C	6-7 Oktas cloud
2-3°C	4-5 Oktas cloud
3-5°C	2-4 Oktas cloud
More than 5°C	Clear

In the above example, where the two lines approach each other one would expect the cloud bases around 3,000ft, and the tops gradually dispersing around 8,000ft, and blue skies above that. Very roughly speaking therefore (which is the best one is going to get in weather forecasting) these charts agree with the Meteoblue profile.

Note that the 0°C level is also roughly around 8,000ft - the 0°C line intercepts the temperature line at 750mb - but this is not important because the idea is to fly VMC on top.

Now, let's look at the forecast weather for the departure and destination. The obvious place is the TAFs but these do not go very far in time and for further ahead one can get data for a specific point from the NOAA site too, this time specifying the airport ICAO code (EGKA or LFKB) and using the Meteorogram program instead of Sounding, and again choosing 0-84hrs.

One can select many different parameters from the pull down menu although one cannot mix 2D and 3D ones. An example for Shoreham is shown bottom right. This shows fine weather (highlighted) for the departure on Friday 1st May. The corresponding plot for the destination is also good (use the 'Another Location' option to avoid having to re-select the menu options). In this case, on the basis of the above advance planning, it's a GO.

However, every pilot will get up to date weather shortly before the flight. There are a number of options:

- METARs, for terminal areas and airports enroute. If you see OVC006 and +TSRA then you are looking at IMC with embedded CBs.
- Weather radar. The most popular site is ***Meteox*** (www.meteox.com). I have found that if this shows solid white then there are going to be convective tops to perhaps FL250 and a lot of IMC all around. Red is a no-go; it is a TSRA.
- Sferics (www.blitzortung.de/DF/Webpages/index.php?station=2&mode=0&map=9&lang=e): These are lightning maps, which will show CB activity. I would not fly anywhere where the map is like a xmas tree.

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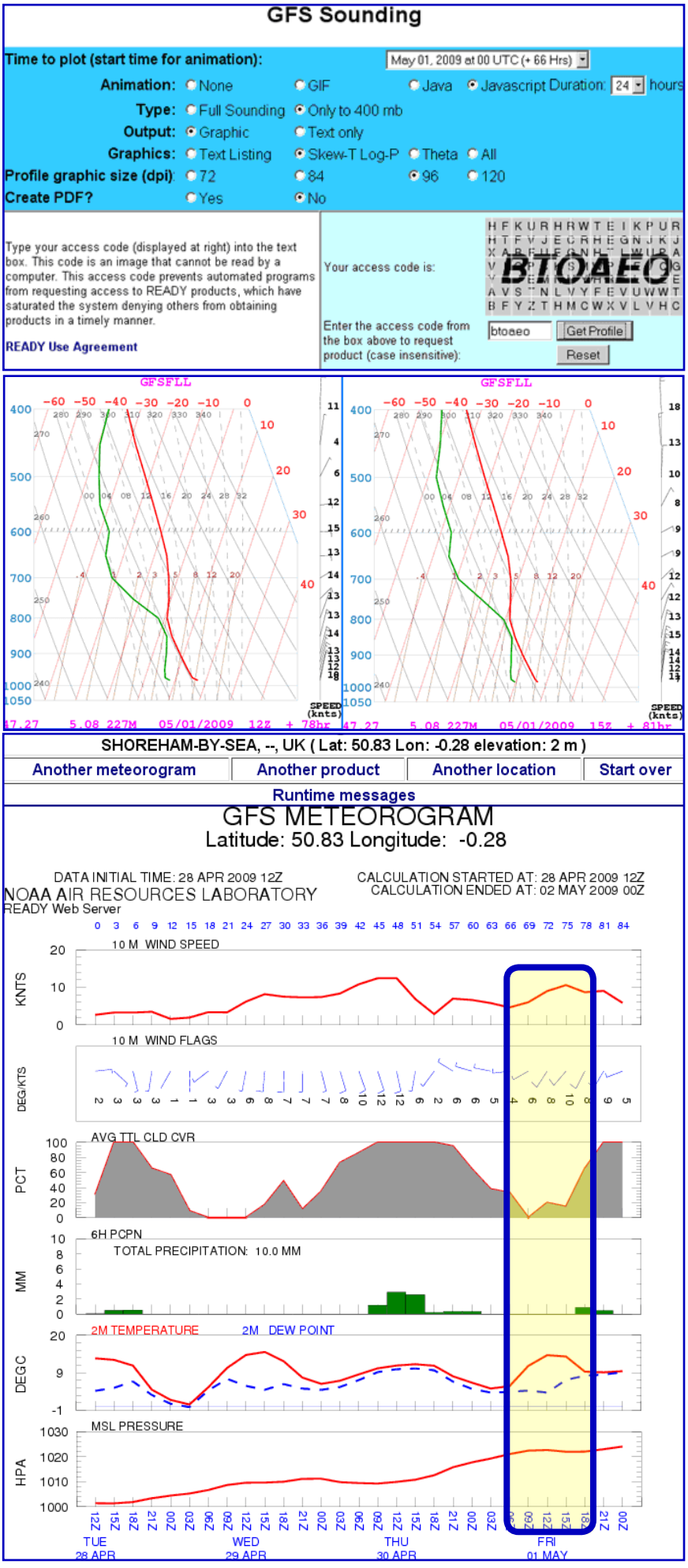


◀ P 6

General tips

The forecasts are often much bleaker than the actual weather not least because IMC is much more of a 'statistical' thing than the data might imply. This is why actual data, be it METARs, weather radar or sferics, has such a great value. Yet almost nobody on the GA scene seems to know about the last two and I can think of fatal accident flights which would have been scrapped had the pilot used this data.

ATC are usually more likely to accommodate - 'due weather' - a rapid descent than a rapid climb, so being too high is better than being too low. Therefore, file the flight plan for the highest level you can fly at, say FL180, and if during the climb you find the general cloud tops to be FL090, ask for a 'stop climb' at FL100. This will reduce the oxygen requirement and may result in better groundspeed if there is a headwind because winds tend to be stronger higher up. In contrast, filing the flight plan for FL100 or lower could result in a poorer (longer) route or - especially in the UK - in being accidentally dropped out of the IFR system altogether.

If departing from a Class G airport, if the local conditions are poor in the intended direction but the weather is OK for a climb in a different direction, depart in the 'good' direction and climb high enough to see what is going on from above, before calling up the IFR controlling authority e.g. London Control. If you call them up immediately after departure, their initial climb instruction could take you straight into IMC with unknown contents.

In Europe, it is very rare for non-convective cloud tops to exceed FL160. The highest I have ever seen was FL185. Avoiding the fronts shown on the MSLP chart is the simplest and the most effective trick of them all!

Fronts

For a conservative pilot, frontal weather will be responsible for the vast majority of cancellations. ***Do not be afraid to cancel.*** Fronts move along (cold ones move faster and more decisively than warm ones) and PROB90 the following day's weather will be fine. Often, for fronts near the terminal area(s), a few hours timing change does it nicely. What illustrates this well is a survey done in the USA of fatal accidents in which weather played a major part where, in the majority of cases, the wreckage was found the following day in perfect VFR conditions.

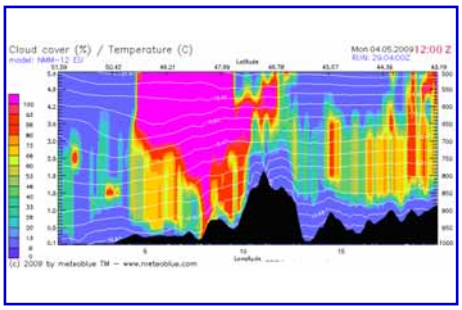
One can fly through fronts, however. For fronts encountered during the enroute phase, the chief issue is the aircraft operating ceiling because the idea is to be VMC on top. Warm (or occluded) fronts are the worst; they tend to be solid IMC with a very low base e.g. OVC005, and often with tops in the FL200-FL250 range, plus anything that sticks up e.g. embedded CBs. This is above the capability of nearly all piston aircraft. The pressurised PA46 can do it, as can many unpressurised turbocharged types albeit with a great deal of oxygen used. Cold fronts are 'easier' because they tend to have less 'organised' IMC and the CBs (which cannot themselves be out-climbed) can be avoided visually. In Europe, it is rare to find solid walls of CBs.

Fronts in the terminal areas are the most dangerous because one might be in IMC and the options are severely limited. This is the province of aircraft equipped with radar, de-ice and high performance.

Of course, there are fronts and there are fronts. A cold front sitting right over the departure airport could be self evidently just a few TCUs hanging around quite some miles away, in which case a safe departure is obviously possible.

One can also get an idea of the forecast severity from the TAFs and this is true for both terminal and enroute-airport TAFs. It is possible to work out atmospheric stability, and thus the probability of significant lifting activity resulting in CBs etc., from the temperature lapse rates in the skew-t charts. But this is what professional forecasters do for a living all day long. If the TAFs were produced by a forecaster who is even half competent, they will contain warnings such as TSRA if the appropriate information exists in the skew-t data. Google on 'skew-t' or 'tephigram' yields vast amounts of variously heavy material.

Convective tops are near-impossible to forecast and employing the above methods (Meteoblue etc.) merely results in something like this.

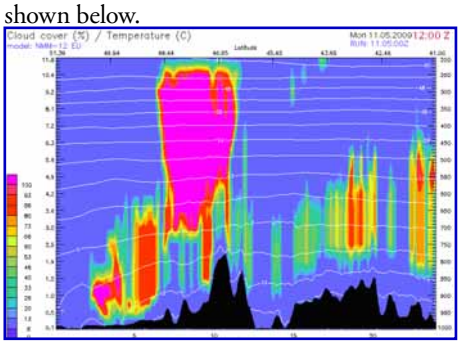


On the face of it this is impenetrable (due to operating ceiling) by any piston aircraft in common use, but would probably be OK if one was radar equipped and seriously de-iced. The flight would be in IMC, in icing conditions, for hours, so toughened-up passengers would be preferred!

SigWx chart reliability?

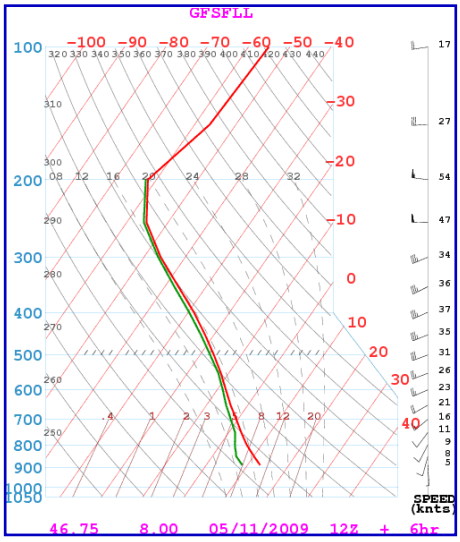
Here is a good example of why the SigWx is not safe to rely on (alone) as a predictor of a lack of hazardous weather: take this Airbus flight from Kavala LGKV to Gatwick EGKK, 11th May 2009, which crossed the Swiss Alps around 1200Z. The SigWx shows no significant weather in the area above FL140 and on that basis one would have probably flown. The corresponding MSLP chart shows the tail end of a warm front, further north of the Alps. Nothing serious there then.

The Meteoblue cross-section of the approximate route (plotted EGKK-LGKV left-right) is a very different picture, as shown below.



Notice the vertical axis going up to 200mb which means the IMC is up to about 35,000 feet.

The NOAA/GFS forecast sounding for a representative spot along the route backs up the Meteoblue picture, with solid IMC all the way up.



Looking out of the window, at a verified FL380, one could see solid IMC to around FL250-300, with lots of convective activity embedded within it. It would have been an extremely rough flight, with no way to outclimb it, and no way to descend out of icing because the 0°C level is somewhere underground. The mountains in the area are a lot higher than the Meteoblue profile shows and they were covered in snow.

Both the Meteoblue picture and the NOAA sounding were 'forecasts' but were run a few hours after the actual flight so one would expect them to be fairly accurate, as indeed they are. No actual soundings (balloon ascents) can be found for the specific area.

Why is the SigWx so wrong in this case? No idea but I have seen this before. I don't suppose anybody particularly cares because the SigWx is a weather product for commercial aviation, and a jet with an operating ceiling of say FL400 is not going to care what the enroute weather is provided they can climb above it which they practically always can. The probable lesson is to consult multiple sources, and proceed with caution.

Oxygen

From the altitude figures seen in this article, it should be obvious that unpressurised flying without oxygen is going to be extremely restrictive because one chucks away the most useful portion of one's operating ceiling even before leaving the ground. Oxygen, with cannulas used in most cases, is not a big deal.

Weather enroute

ATC can supply weather (METARs) for specified airports, if not too busy. There are VOLMET broadcasts on selected VHF frequencies. For high-end aviation there is satellite internet on which you can obviously get anything you want. I have done a relatively successful project on the use of a satellite phone for this purpose. *Ed: see Peter's article in* ***Instrument Pilot 69*** *last year.*

Mobile Internet access

This is a *de facto* necessity for any serious travelling pilot, whether VFR or IFR. Over the past few years, pre-flight activities (weather, Notams, flight plan filing) have moved more or less wholly to the Internet. Whilst most things can still be performed using the traditional airport briefing facilities, this is at best a waste of time especially at an airport where no English speaking persons can be found. And almost no airport briefing office will have enroute Notams, or any weather data beyond the standard METARs, TAFs, MSLP, maybe SigWx.

Mobile Internet is a broad subject but, in short, one needs a laptop equipped with Wi-Fi, GPRS and 3G. Wi-Fi is a high speed short-range radio system which works over some tens of metres. GPRS and 3G are cellular radio systems which run on the back of the normal mobile phone network. GPRS runs at a speed comparable to the old dial-up modems (OK for most aviation related tasks) and is available virtually everywhere where there is normal mobile phone reception. 3G is close to Wi-Fi in speed but despite press hype its coverage remains poor outside areas of obvious 'business user' demand. Fortunately, GPRS/3G modems generally look for a 3G connection first and if none is found, fall back to GPRS.

Practically every laptop has a built-in Wi-Fi radio but the days of free (or unsecured and unintentionally available) Wi-Fi are long gone and most providers (found at hotels, airports, cafes, etc) are trying to make money out of it, with pricing which occasionally verges on obscene. Its short range means that even if it is available at the airport cafe, it will be out of range if you have to do a last-minute re-plan while outside on the tarmac and trying to avoid going back indoors, having to clear Customs again, etc.

Use GPRS/3G

This is where GPRS/3G comes in, and there are multiple ways to make it work. There are some laptops with a built-in GPRS/3G modem but while this approach is neat and avoids 'gadgets', it can result in much higher costs if one frequently flies abroad: the GPRS/3G modem is literally a mobile phone and thus requires its own SIM card. In most 'private pilot' usage, this SIM card will be used only sporadically and most pilots will obviously choose a prepaid (PAYG) tariff. All the network operators charge exorbitant rates for roaming (in general, 'roaming' means any usage outside of the country where the SIM card was issued) GPRS/3G data on PAYG; the current Vodafone rate tops the rip-off list at around £10/megabyte! Topping up a PAYG SIM card can also be a hassle, especially as often there is no easy way to find out how much money is left on it, without extracting it from the innards of the laptop. Therefore, a more cost-effective approach is to use one's own mobile phone as an external GPRS/3G modem, connected to the laptop using Bluetooth (a very short range radio link that works over a few metres); this makes use of the phone's SIM card which is likely to be on a contract tariff, and contract tariffs have much lower data costs than PAYG. The top of the range 'business user' contracts come with huge amounts of 'free' data allocation, even when roaming, but almost nobody is going to be paying say £50/month for a SIM card which is stuck inside a laptop and cannot be used for anything other than internet access via that laptop. However, there are no clear rules here and the tariffs vary and change regularly. I use a Thinkpad x60s-1704 laptop with an integrated GPRS/3G modem (originally Vodafone-locked but since unlocked) and with a PAYG SIM card (Virgin; £5/MB when roaming) which is topped off automatically using direct debit.

But fax still desirable!

None of the above should be attempted when airborne. Wi-Fi obviously works only on the ground anyway. GPRS/3G can sometimes be found to work up to around 2000ft when airborne but is highly unreliable at best. A truly airborne Internet data solution requires a satellite phone. This can be made to work acceptably but a reliable implementation involves a permanent rooftop antenna to be installed in the aircraft.

Mobile Internet delivers many time-saving benefits. You can get weather, Notams, contact airports regarding PPR, file the flight plan, as well as all the traditional Internet tasks such as email.

Fax is regarded by many as outdated but remains desirable for airport PPR requests or notifications, not because the airports are not on email but because the email address is unpublished, is wrong, or nobody reads the emails. In terms of technology and management attitudes, many airports are still in the age of Humphrey Bogart and DC3s, with the major concession to technology being a fax machine, hopefully with some paper in it. With some fax software, one can transmit faxes directly from a laptop with the aforementioned GPRS/3G modem but receiving faxes requires the laptop to be switched on permanently which is usually impractical. Most mobile fax users therefore prefer to use email2fax and fax2email services which avoid a great deal of the technical hassle of setting up faxing and merely need Internet access.

Almost any laptop can be used for the above functions. The recently introduced 'EEE' ultraportable laptops, at £200 to £300 including Windows XP, and a rugged solid state (FLASH) hard drive, deliver a highly cost effective and portable solution.

More information on IFR flying and Peter's Socata TB20 aircraft can be found on his own website at www.peter2000.co.uk/aviation/.

AeroExpo Special Report

Aviation Dream

by Jeff Pearce

For the third year running AeroExpo was blessed with good weather. Do the organisers have a crystal ball or have they just been lucky? Certainly on the Sunday afternoon, when I helped man the ***PPL/IR Europe*** stand, the heat could be felt coming off of the hangar roof but with the doors open either end the heat was pleasant rather than oppressive and really ideal for walking round the external exhibits.

As in previous years there were mouth watering displays of aircraft for all budgets from kit built microlights through to the serious end of GA if you have a few million to spend. The one thing that they all seemed to have in common though was the almost universal fitting of glass cockpits. Obviously the higher up the aviation 'pecking order' the more expensive, capable and envy making the avionics but certainly you would need to search hard to find an aircraft on display with just the 'steam driven' instruments of yesterday. If there is anyone out there still harbouring thoughts that glass cockpits are a passing fad or less reliable than the older instrumentation, then a visit to AeroExpo would surely bring home to them the reality that they are trying to hold back an 'aviation tide' as unstoppable as anything King Canute tried to prevent. Even the smallest kit built microlights were sporting glass cockpit fits with GPS and engine management systems which would have been the envy of most GA spam cans just a few years ago.

The aviation bug

During my visit this year I was accompanied by a young man totally smitten with the aviation bug and just starting on his PPL training. It was therefore interesting to see AeroExpo through his eyes and the help and guidance readily given by most exhibitors, though sad to report not all were so forthcoming. Maybe they considered a young man with barely double figures in his log book and yet to go solo a time waster in comparison to some of the 'high rollers' that doubtless were out there; but you would think that an enquiry about likely costs of commercial training and means of getting that training would have been met with a bit more positive response than a leaflet and the total cost which was how one flight school greeted his enquiry. Perhaps it was because we were there on Sunday and they were tired at the end of a successful three days but to their credit most were extremely helpful and informative. The exhibitors of the Cessna Caravan couldn't have been more helpful, inviting him into the cockpit and showing him round the aircraft. Needless to say this has inspired him even more to follow his dream. Who is to say that in a few years time he may even find himself flying a Caravan to some bush strip in Africa or Australia where these aircraft excel?

The new Cessna 400 was at the show and creating a lot of interest, not surprising really given its previous lineage and low wing configuration. Does this mark the end of Cessna's long love affair with high wing designs for GA aircraft? Cirrus was also very much in evidence and was also creating a lot of interest as was Czech Sports Aircraft showing three models: the basic Club, the Tourer and the top of the range Professional. With its full glass cockpit, six hours endurance and a dry tanks range of 745nm, this Rotax engine LSA was constantly surrounded by interested visitors.

Not an IR training organisation

Once again ***PPL/IR Europe*** were organising and hosting an excellent series of seminars. There is no doubt that this is making our group known to a wider aviation public. The subjects covered were quite diverse with something for everyone. Whether you were looking for a greater understanding of Part M, the weather, GPS approaches or even how to offset your flying costs by becoming an aviation-related writer there was something here for you. The presentations relating to GPS and its usage resulted in a run on Vasa Babic's publication on RNAV Training on our stand such that we quickly sold all the copies we had and were taking orders for future delivery. Perhaps not surprisingly Jim Thorpe's presentation on ***The Future of the IR and IMC in Europe*** was greeted with a certain amount of concern by IMC rated pilots. The future of the IMC rating and the attainability of a European instrument rating was a recurring question from visitors to the ***PPL/IR Europe*** stand. Notwithstanding all this effort to raise our profile there are still many pilots out there under the misconception that it is some sort of elitist club or a training organisation specialising in IR training. During the two hour slot when I helped on the stand, no less than three people that came to the stand thought we were an IR training organisation and clearly did not realise we were a members' club. So work is still to be done!

Was it a success?

So was this year a success? Well the prices at the burger and drinks stalls seemed to be based on 'aviation pricing' but, on reflection, were no dearer than any other events of this type where the retailers have a captive audience. I do wonder where everyone would have eaten them if the weather had been inclement as all the seating is outside: lovely on a sunny day but who wants to sit in the rain eating a £5 hamburger? There were complaints from some that they had wanted to fly in but all the slots were taken leaving them to drive to the event. The number of aircraft movements did not seem that high and maybe improvements could be P 10 ▶

AeroExpo Special Report

Behind the scenes

by Andrew Lambert

Nearly two years ago I approached the organisers of AeroExpo to see if ***PPL/IR Europe*** could run an IR related event during the Expo. As Membership Secretary my objectives were to increase the profile of our organisation in the general GA community, promote the IR and of course recruit new members.

One thing led to another and soon I was organising, on behalf of ***PPL/IR Europe***, the main three-day seminar programme for AeroExpo 2008! In return for organising the programme we were given a large stand in Hall A next to the organiser's own stand.

This was the first time that we had exhibited let alone organised a large seminar programme and as you might expect not everything went to plan. Fortunately our IFR training that enables us to deal with last minute routing changes, ATC requests and weather diversions meant that the team of volunteers were able to handle last minute glitches. *(Ed. Really!!)* The seminars were well attended, we had a professional looking stand, it was well manned and we signed up a significant number of new members.

The organisers were also pleased with the outcome and invited us to organise the seminar programme for 2009. Learning the lessons from the previous year I started approaching potential speakers in late November with a view to having the final programme ready for February. The Executive also agreed it would be advantageous to have someone responsible for co-ordinating the stand and Alan South kindly took on this task.

Despite starting earlier I was unable to get the programme finalised until May. It was difficult to tie down several of the potential presenters and, with my own work commitments, I was unable to chase them very often. While unfortunately we missed the copy deadlines for the major magazines, AeroExpo has a slick email marketing activity and the seminar programme was widely distributed.

I turned up the day before the exhibition to deliver items for the stand, build the furniture and check on the state of the theatre. When I left around 6.00pm the exhibition company were just starting to build the walls for the theatre, there were no chairs and the audio/visual engineer couldn't get the image from the projector in focus!

So I arrived with some trepidation on Friday morning not knowing if the chairs had been found and whether the engineer had fixed the projector. My faith in their skills was well placed and the theatre was ready to go.

The seminar program was themed such that Friday targeted the business and top end GA visitors, Saturday covered more general topics and Sunday focused on light and sports aviation.

Last year the seminars started soon after the gates opened in the morning and the first two seminars on all three days were poorly attended. This year we delayed the start time and attendance at the morning seminars was much better.

The best-attended presentation for Friday was given by Cirrus although the two ***PPL/IR Europe*** presentations were also well attended. The Met Office presentation was very popular in 2008 and this year they claimed the top slot for Saturday but were closely followed by my own presentation on 'GPS Approaches'. Irv Lee's demonstration of AFPEx and NOTAMs took the top slot on Sunday with Paul Sherry's talk on 'Getting and Using the IR' in second place. Overall the seminar programme was better attended than last year.

Lessons learnt from last time helped this year's event to run smoothly. The demonstration of AFPEx and the NOTAM system required a live Internet connection. The organiser's IT team and I were on tender hooks during Irv's session as the Wi-Fi network had crashed in the morning and had required a reboot; however in the end Irv completed his presentation without a hitch.

Flush with our success this year we are considering attending an overseas exhibition next year. If you would be willing to help with the organisation or be able to man the stand, especially if you speak another language, please drop me a line at andrew.lambert@ems-uk.com.

Many thanks to all those who presented, helped on the stand and in the theatre this year and a special thanks to Alan South and Sali Gray for organising the stand, which certainly made my workload lighter this year.

PPL/IR Europe executive member Vasa Babic at one of the seminars

◀ P 9 made to increase the numbers arriving by air which, in itself will add a higher level of interest for some of the general public. From the ***PPL/IR Europe*** point of view, there is no doubt that it was an unqualified success. Not only has it increased our profile and membership but it also offered a good opportunity for existing members to meet each other face-to-face.

Why not make a point of attending next year and put some faces to names you may have seen on the forum? You are sure of a cheery welcome and if you can spare some time to help man the stand, get on the rota and get in for free! See you there!

AeroExpo Special Report

New members
by Alan South

Way back at the September 2008 Executive meeting, we reviewed the effect of our first ever trade show presence at AeroExpo, agreed it had been worthwhile, and decided to go back in 2009. Thanks to us taking responsibility for the full seminar programme, and to Andrew Lambert for actually delivering it, the organisers give us a very nice stand space in exchange. In 2008 most of the hard work in creating the stand was done by Jim Thorpe. For 2009 I volunteered to produce the stand and share out the work. We agreed the following principles.

The primary objectives are to increase the profile of ***PPL/IR Europe*** within the GA community and to recruit new members. Our main target would be current IFR (JAR/FAA/IMCr) pilots who are not members. Our secondary target would be current VFR pilots who are considering getting a rating.

The core idea of the stand was to replicate the top line content of our website as so many people tell us how much they like it. To do this we agreed to invest a small amount in some custom boards and banners that can be used at other events and I offered to do the graphic design and production to keep costs down.

As always, we learned a lot and it will be even better and easier next time. It was a real team effort and I would particularly like to thank:

- Sali Grey for co-ordinating stand delivery, breakdown, and staffing
- Andrew Lambert for handling so much of the logistics (as well as running the seminars)
- Jim and Judi Thorpe for once again loaning their exhibition board system and for procuring additional furniture
- Peter Holy and Timothy Nathan for photos
- Paul Turner for the huge image files needed for the vertical banners
- Anthony Mollison for help with copy writing
- Peter Bondar for storing the furniture

Last year we considered the signing up of thirty new members over the three days to be an excellent result. This year the figure was even better at thirty nine and, if last year is anything to go by, even more people will 'come on board' after the event.

PPL/IR Europe membership administrator, Sali Gray at the AeroExpo stand

Environmentally friendly way to travel?
by Graham Duffill

August edition of ***Pilot*** magazine proclaims 'AeroExpo defies downturn'. Well, up to a point, Lord Copper. People went, people undoubtedly bought things. I even bought things - £50 worth of charts for this summer's trip.

But, I wonder how many people bought things with wings on? There was the usual tent containing prams with propellers, a couple of Cirrus in their traditional pole position, some of those big shiny Swiss cans with seven figure price tags that I cannot believe anybody actually buys, especially as they are too stuffy to let you get near them, but a distinct shortage of the medium and medium-big cans that usually get me excited.

In fact, this year it wasn't aluminium cans that tickled my fancy, but plastic ones. Maybe it's just me, but like a method actor I notice I have become permanently stuck in character as the recession miser. I don't pay full price for anything any more. If it's not reduced they are not trying hard enough to sell it to me. If I can't negotiate a deal the other guy is either too complacent or too well-off already.

On which note, I have recently been trying to convince my ultra-green children that light aircraft are actually the most environmentally-friendly way to travel. These are children who are not at all concerned to find their parents lying in a crumpled heap at the bottom of the stairs because the alternative, to turn on the light in the hall, would be a sin which would cost the life of a polar bear on a distant icecap.

Well, it's obvious isn't it? We travel in the most friction-efficient way possible, powered by engines that could fit in a moped. Everyone should learn to fly, the government should focus all research on making our engines and fuel more efficient, stop spending money putting cones on the M1 and start re-opening WW2 airbases.

So, I fought my way through the swarm around Roko Aero's NG4 and Czech Sport Aircraft's sport cruiser and started mentally putting together my ideal aircraft. In previous years my little game of Expo-induced make-believe revolved around a G3 - but I didn't even go near the Cirrus stand this year. The year before it was something with six seats and rubber boots, which I don't think was even there this year.

Now somebody just has to make one of these lightweight planes long and sleek enough to cruise at 200 knots powered by an engine that sips a litre an hour and I'll finally sign that cheque and spend the children's inheritance on being truly green.

The most interesting conversation I had at the Expo was with a new exhibitor, Brian Thompson, chief pilot of ***Above the oceans*** (www.abovetheoceans.com). Brian is a 747-400 pilot by day, based out of Paris, and a ferry pilot by leisure. His company will charge you $17,000 to fly your next aircraft from the USA or, if you have 5,000 hours and appropriate qualifications, maybe even contract you to ferry an aircraft for it.

Now that's a relaxing retirement job I could probably enjoy. Sitting in an immersion suit at 20,000 feet hoping the 160 knot tailwinds will eke out my fuel to get me to Iceland and that my

AeroExpo Special Report

fuel calculations were accurate in the first place. Brian has made more than 100 North Atlantic crossing in a light aircraft and says it is the most challenging flying he has ever done. Must get him to talk to the missus as part of my next campaign to persuade her that she really does want to fly over to Le Touquet for the day.

The comparison of the aircraft's altitude with the base of controlled airspace can be seen on the right of this screen shot of the Kanardia Nesis moving map

The main display of the Kanardia Nesis. The software seemed very intuitive compared to other cheap glass units

What you missed at Prague

by Timothy Nathan

AeroExpo Europe took place at Letnany airfield just a month after Friedrichshafen and was a comparatively much smaller and lacklustre affair. On the plus side Letnany is a lovely little grass airfield with an exhibition centre on-site so the walk from the flight line to the hall was only about 100m. The arrival procedures were straightforward and the reception friendly and helpful. Letnany is on the Prague Metro system, and the walk from the airfield to the station is only about 300m, so I thoroughly recommend it as a destination for simple types. Larger, heavier and more complex types might be put off by the surface which is generally good but plagued by a small rodent which digs small holes and leaves a small mound of earth next to it. These holes are generally too small to be an issue, but some form a small rut which could embarrass a delicate retractable.

The emphasis of the show was on the burgeoning VLA market. There was line upon line of very similar two seaters, all with the same Rotax power plant, all offering excellent speed, range and frugality and capable of carrying two reasonably sized adults and a bit of baggage. The difficulty for the buyer is to choose between the large number of manufacturers and, above all, determine which are likely still to be in business to support their products in three years time.

Additionally, there were a number of new VLHs (or did I just make that up?) that claimed to be able to seat two in what appeared to be considerable discomfort.

Nearly all of these VLAs sported full glass cockpits and the most interesting aspect of the show was the down-market movement of glass. Garmin is now producing small uncertified units and there were quite a few smaller manufacturers from all over Europe offering very cheap and light equipment. Each has their own unique selling point and in many ways there was little to choose between them; but a unit which particularly caught my eye was from Kanardia of Slovenia.

They had quite deliberately gone back to basics and thought about what they would want as glider, microlight and VLA pilots rather than trying to play catch up with the big boys. For example, they recognised that ribbons generally work the wrong way, and that it is far more readable if the ribbon is fixed and the pointer moves as in steam instruments. A feature I particularly liked was being able to see, in a strip down the side of the moving map, a vertical map of the airspace the aircraft is sitting in. I had a long discussion with them about why a VFR only unit needs to sport so much IMC capability, including very sophisticated AI emulation. They just shrugged and said that the market demanded it. It would be much cheaper to produce a unit without all the accelerometers but no one would buy them. The upshot is a highly featured MFD with AI, moving map, ASI, altimeter, engine instruments and much more which can be supplied installed for $3,000. Quite remarkable if true.

Apart from the advance of cheap glass there was little of specific interest to the IFR pilot. Garmin say that they had seen their original equipment sales rising significantly over recent years only to find now, in the recession, that they are back to relying on after-market fits again, a significant measure of the lack of new aircraft sales.

Garmin also announced that they had EASA technical standards (ETSO) approval for the G600. This is an aftermarket glass unit offering a twin screen with the usual PFD and MFD combination in a single box that can be mounted with relative ease in any

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Garmin G600

◀ P 12

normal GA aircraft. What excited them most is that they have cross type approval. Providing that the installer can get certain other backup instruments into pre-defined limits of visual arc, then approval is automatic. The unit is still not cheap. It costs more than my Aztec is worth, and there will be a large installation bill on top of that, but it is nonetheless a good looking and effective little unit.

The new Austro engined DA42 requires an uprated undercarriage to cope with the heavier, more powerful engines making an upgrade for Thielert's victims even less attainable. The new engine produces 20% more power, while giving better fuel economy than the Thielert engines and results in a higher gross weight and increased performance. Now that Diamond has acquired the Austro engine, worries were being expressed that DA42 owners will be going from the frying pan of an engine monopoly supplier (which proved so disastrous) to the fire of a single monopoly supplier of both the engines and the airframe.

The Tecnam twin looks very nice, giving the impression of cabin class twin safety at low cost, and they claim a capacity order book; however, the €350,000 price for a full glass IFR puts it in competition with some much more capable hardware and you would have to save a great deal of fuel to pay that off.

The highlight of the trip was the dinner organised by Charles Strasser for various luminaries, from famous Czech air force aces to the lady who plans to fly a glider around the world, as well as setting a new world altitude record for a glider. Her father's claim was that she would be going to 30km (100,000ft) made us wonder if had got his units confused but it will be fascinating if she does it.

Anyway, with all this talk of VFR approaches to grass runways, uncertified equipment, VLAs and gliders, no-one from the PPL/IR community need worry about what they have missed.

Pilots' talk

By David Bruford

Dates for your diary

4th - 6th Sep 2009. Guernsey International Air Rally

The Guernsey Aero Club will be running their ever-popular Guernsey International Air Rally again this year offering the usual mix of fun and flying, with an optional navigation competition starting from Guernsey on the 4th and a themed 'Pink Punk and Posh' Hangar Ball on Saturday 5th. Other fun competitions will take place over the weekend and attendees will also have the chance to fly in an AN2 or Ultimate High's Extra 300.

So, a great time to visit the beautiful island of Guernsey, shop in the tax-free lanes of St. Peter Port and enjoy a unique bit of British history, with the added attraction of low landing fees, tax-free fuel (currently 88p), and all of it outside of the Eurozone, making a visit even better value. Details are available at www.guernseyaeroclub.com/rally or call +44 1481 265267.

18th to 27th September 2009. Autumn regional and start of *PPL/IR Europe* European tour

It is planned to hold an inaugural regional members' meeting in Prague on 19th September followed by an eight day tour. An open meeting of the Executive will take place approximately 10am - 3pm on Saturday 19th September, with the remainder of the afternoon free for sightseeing, a group dinner in the evening and a visit on Sunday morning to one or other sites of local interest (currently being explored by our local contact).

Five planes are already confirmed but there is space for one or two more. Please contact Stephen Niechcial at sjniechcial@hotmail.com for more information and booking form.

Guided visit to AAIB, Farnborough, 16th Oct 2009

There will be an organised tour for ***PPL/IR Europe*** members to the Air Accident Investigation Branch at Farnborough.
ALL PLACES ARE NOW FILLED.

UK airshow & fly-in dates '09

www.aeroflight.co.uk/shows/showdate.htm including, in the next couple of months, Lundy (always a challenge and before you set off, have a read of page 20, ***Instrument Pilot 44***) and Popham and air shows at Yeovilton, Old Warden, Culdrose and Shoreham.

AeroExpo 2010

Further to our special report on AeroExpo, here's advance notice that next year the expo will be held between 25th and 27th June.

CAA Safety Evenings

The CAA presents a programme of GA Safety Evenings each winter. The events which have been fully confirmed for 2009 are listed below, and all pilots and others associated with GA operations are strongly encouraged to attend an event in their area. Although the emphasis may be slanted towards the host organisation, the content is relevant to all forms of general aviation. It is usually appreciated if those attending let the organiser know of their intention, to give an idea of probable numbers. Most events are free, although a small charge is sometimes necessary to cover the cost of hiring the venue or providing refreshments. The evenings start at 19.30 unless otherwise advertised, to last approximately 2½ hours including a short break. The main speaker from Flight Operations (GA) is normally accompanied by a guest, and discussion and questions are encouraged. Everyone present has the opportunity to win prizes donated by generous sponsors.

Dates for CAA Safety Evenings 2009

10/10/2009	Little Snoring, (please phone beforehand for venue)	01263 822868
13/10/2009	Halton, Kermode Hall	01296 622697
15/10/2009	Sherburn in Elmet, Sherburn Aero Club	01977 682674
4/11/2009	Blackbushe, Bushe Cafe	07788 713291
9/11/2009	East Midlands, (venue TBD)	01332 810444
1/12/2009	Middle Wallop, (venue TBD)	01264 772711
2/12/2009	Perranporth, Flying School Clubhouse	01872 552266
3/12/2009	Kemble, (venue TBD)	01285 771025

Airfield updates

Bit quiet on the airfield updates front in this issue. This section relies on members sending me titbits on their local airfields, I'd be very grateful if the usual contributors would resume contributions and some new ones start (contact pressoffice@pplir.org)! Until then, many thanks to BC of Coventry who sent in details of a local BBC report. ***Coventry Airport***, which lost its only passenger airline last year and has seen plans for a new terminal rejected, has been put up for sale. Thomsonfly left in November blaming the increased focus on charter holiday flights rather than scheduled flights. Plans for a new terminal were dropped in February. A public inquiry had found they would have an adverse impact on noise in the area. Airport director Brian Cox said it offered 'excellent potential'. He added he was 'looking forward' to attracting another airline to Coventry in the future. He said: '*Presently we are concentrating on developing the airport as a 'Midland hub' for cargo, executive jets and ad hoc charter operations.*'

Italian pilots protest

Aviators in the US who received forwarded e-mails from AOPA Italy recently soliciting contributions may have thought it was a scam. The e-mail offered a bank account number for direct deposits, or suggested that readers '*...please call Antonella from Tuesday to Friday... giving us your credit card number.*' But although the e-mails may seem suspect, the appeal is legitimate, President Massimo Levi told AVweb '*Unfortunately, it is a very serious issue,*' Levi said in an e-mail. AOPA Italy sent the e-mails to its local membership, and then they apparently were forwarded widely. Levi said a large chunk of the country's airspace has been closed to VFR traffic because of a financial dispute between Italy's aeronautics agency and its Air Force. The plea to its membership brought in the $20,000 they needed to go to court against what Levi calls '*an illegal administrative act.*' He wrote: '*Italian pilots gave us the money in less than a week ... and we are now ready to fight!*'

Levi said the issue has been picked up in the national news, '*...and this disturbed considerably our authorities; so much that we have been invited to 'discuss' the change of the NOTAMs.*' He hopes that meetings will take place within a week or so.

EC takes UK to task over aircraft VAT exemption

The UK government is considering a demand from the European Commission that it change its tax legislation to remove an exemption from VAT for privately operated aircraft weighing more than 8,000 kg (17,636 pounds). On June 25th the EC '*formally requested*' through a so-called '*reasoned opinion*' that Britain bring its VAT rules into line with those of the 27 state European Union. If the country fails to make the change within two months, meaning by August 25th, the EC can take legal action through the European Court of Justice. A spokeswoman for the UK government's Revenue and Customs department said that it is '*considering the position.*' She acknowledged that current British VAT rules allow an exemption based entirely on aircraft weight, rather than specifying that the aircraft has to be operated commercially, as is the case with almost all other EU states. Revenue and Customs argues that the difference between the UK and EU positions is marginal in practice because '*the majority of aircraft operators are VAT registered [and so] any VAT charged can normally be reclaimed.*' The EC's concern is that VAT-exempted aircraft imported into the UK could then be re-exported to another EU state at zero VAT.

FAA: use constant descents for non-precision approaches

The FAA recently issued a Safety Alert for Operators (SAFO 09011) to provide guidance for Part 121 and 135 operators about the importance of using a constant angle of descent when conducting non-precision instrument approaches. It issued the alert because a Part 121 operator conducting a non-precision approach at night in IMC failed to control the descent rate and subsequently crashed short of the runway. '*During a non-precision approach procedure, the descent from the final approach altitude to the MDA requires disciplined piloting technique and increased situational awareness to accommodate the pilot workload during this segment of the approach,*' according to the SAFO. Because other factors such as multiple step-downs and night time operations can add complexity, '*operators should evaluate and, if necessary, implement appropriate procedures to reduce workload issues applicable to non-precision approaches.*' The FAA said such procedures should include the use of vertical navigation (VNAV) or a constant angle of descent on the final approach segment. The alert also includes recommendations for operators to update their training programs and operating procedures with respect to the information in the SAFO.

It's not easy being green (Kermit the Frog, 1955-)

The FAA and American Airlines have wrapped themselves in the eco banner in selling the benefits of the NextGen airspace system. The agency and airline are promoting the environmental benefits of the system with the announcement that the latest technology and techniques will be used for a 'green' flight from Paris to Miami. But what it really comes down to is that the 767 will go GPS direct rather than following the airways and use gradual rather than stepped climbs and descents. In other words, it will operate like general aviation has for more than a decade. The flight has earned a remarkable amount of attention from the mainstream media.

The US newspaper, the Miami Herald trumpeted the flight as a '*Step forward for aviation*' and newspapers all over the world picked up on the potential fuel savings. However, there were those who pointed out that there's nothing really new about this except that it's a regularly scheduled airliner doing it. '*The event is simply a publicity stunt,*' the National Air Traffic Controllers Association said in a statement. '*The flight will be using GPS technology that we have been using for years.*' Miami was chosen as the destination because it's the first air traffic control facility in the US to be outfitted with the NextGen gear.

Resolution advisories study

Displaying TCAS (Traffic alert and Collision Avoidance System) resolution advisory (RA) information at the controller working position can potentially improve situational awareness and reduce the possibility of contradictory clearances being issued to an aircraft involved in an RA encounter, according to a new study.

The utility of RA downlink will depend on, amongst other factors, the frequency and types of RA events. If RA events are too frequent, the display may clutter the controller's screen. Types of RAs need to be taken into account as well to determine whether the RAs will cause the pilot to depart from their current ATC clearance. For these reasons one of the objectives of the monitoring part of the PASS study (*Performance and Safety Aspects of Short-term Conflict Alert*) was to quantify the frequency and type of RA occurrences. That part of the study is now complete, and has concluded that RA encounters occur approximately 18 times per day in European airspace and can be monitored reliably via Mode S radars.

The study was commissioned by Eurocontrol and conducted by a consortium led by Egis Avia in cooperation with QinetiQ, DeepBlue and French air navigation service provider DSNA. Additionally, air navigation service providers from Germany and Switzerland supplied data which was used for analysis.

PASS - analysis of RA encounters

RA downlink data was collected from six Mode S radars, covering most of the European core area, over a period of seven months. The collected data comprised over 1,300,000 flight hours and more than 350,000 RA downlink messages. A single encounter will lead to several downlink messages, the number depending on the duration of the RA, the amount of overlapping radar coverage, and the radar refresh rate.

The analysis revealed that only 12,476 (3.6%) of the recorded messages corresponded to RAs triggered on-board 1,029 aircraft involved in 880 RA encounters. The remaining 96.4% of messages were 'empty'. This was not unexpected as this problem had already been identified in previous Mode S radar monitoring studies.

Only 17% of all encounters resulted in a coordinated RA i.e. in 83% of the encounters, an RA was generated on-board only one of the aircraft involved. Reasons for this include the geometry of the conflict being such that the RA was not generated on the TCAS-equipped threat aircraft, the threat aircraft not being TCAS equipped or the threat aircraft TCAS being in Traffic Advisory (TA) only mode.

The first case occurs when one aircraft is climbing or descending while the other is in level flight (on the latter aircraft, narrower parameters for RA generation apply). On average, RA encounters occurred every 960 flight hours on board TCAS equipped aircraft. The average duration of all RAs was 33 seconds, with 85% of RAs lasting between 5 and 45 seconds.

The distribution of encounters across flight levels was also analysed. A noticeable peak occurred below FL 40, corresponding to encounters between IFR flights and VFR flights. Outside this, most encounters occurred between FL 90 and FL 140 and between FL 210 and FL 360 because level-off geometries most frequently happen in these altitude bands.

PASS - types of RA

617 of the 880 RAs (70%) were classified as 'intentional' - i.e. they were generated during flight testing or military operations. Among the remaining 'unintentional' encounters, the majority (61%) of RAs were solely 'adjust vertical speed' RAs. In 24% of cases, the RA was a 'climb' or 'descend' RA, usually followed by a weakening RA to 'adjust vertical speed'. About 10% were preventive RAs, occurring mainly between IFR and VFR flights.

PASS - conclusions of study

This study has provided an insight into the frequency of occurrence of RA encounters and their distribution over a number of factors, including threat aircraft equipage, flight levels and type of RA. The main finding was that the rate of RA occurrences is lower than anticipated - one every 2,160 flight hours. Extrapolating the observed number of RA encounters per flight hour in the monitored area to the European airspace, this would mean an average of 18 RAs per day. The work enhanced understanding of the issues which exist with down-linked messages, which are currently being addressed. It also confirmed that RA encounters could be reliably monitored via Mode S. The findings of the study will now be discussed in the Eurocontrol SPIN (Safety nets Performance Improvement Network) (*why not SNPIN?*) sub-group to form recommendations for the future of RA downlink.

Aircraft manufacturers challenged to find unleaded fuel option

The elimination of lead from automotive fuel has long been hailed as a top environmental achievement. But finding a replacement for the leaded aviation fuel that powers tens of thousands of piston engine aircraft flying in the United States today has proven to be much more difficult. Eventually, the Environmental Protection Agency will phase out its use. And economic factors could affect its cost and continued availability. '*Identifying the right fuel and putting in a plan to transition to it is vital*' said Walter Desrosier, vice president of engineering and maintenance at the General Aviation Manufacturers Association (GAMA), an industry trade group.

'*It's necessary to ensure the viability and health of the general aviation industry,*' he said. The industry cut the amount of lead additive in aviation fuel in half during the 1980s, resulting in the 100 octane 'low lead' aviation gasoline in use today, in response to health concerns about lead. That's the minimum octane necessary to ensure safe flight of the existing fleet of general aviation aircraft, GAMA said. But finding an acceptable fuel without lead is taking time.

'*We did not find a fuel that can simply replace 100 low lead and it would have the same level of performance and the same level of operation for the entire fleet of general aviation aircraft,*' Desrosier said. A replacement must ensure the aircraft would operate safely, be environmentally friendly, economically feasible and have the ability to be widely distributed to airports and fixed-base operators, the trade group said. '*We've never had to go backwards and approve an existing engine and an existing airplane to a new fuel,*' Desrosier said.

Only one lead additive supplier left

The world has moved away from lead additives in fuels, and demand has plummeted. With less demand, there's only one main supplier of the lead additive used in Avgas in the world. That brings with it the risk of rising costs or interruption of supply, Desrosier said. The supplier, Innospec in the United Kingdom, has assured the industry it will continue to produce the additive and make it available. Still, there's risk, Desrosier said. '*If something happens in the transportation... suddenly there's a stop in supply and 100 low lead Avgas may not be available,*' he said. That would have a detrimental economic impact to the US Piston-powered aircraft engines, high-performance engines in particular, have been built for use of high-octane leaded fuel. The lead boosts the fuel's octane rating, and that helps prevent destructive detonation that can occur with the high-performance engines. '*If you don't have 100 octane fuel, leaded or unleaded, those aircraft will be grounded without significant investment,*' said Michael Kraft, vice president of research and development and engineering at Lycoming. '*We're trying to find an alternative that will work with the planes that are out there in the fleet,*' said Stan O'Brien, Hawker Beechcraft's project engineer for piston engine aircraft. '*It makes it a difficult challenge.*' Performance levels on aircraft must be tested. '*Can you imagine if you just bought a new Bonanza last year and we say, "Oh, by the way, here's your (new, lower) performance levels*" ' said Hawker Beechcraft vice president of product development and engineering Ed Petkus. '*You wouldn't have happy customers.*'

Unleaded options

Two unleaded fuels are being evaluated for their potential. One is a petroleum-based fuel similar to Avgas, but without the lead. Most of the planes flying would P 17 ▶

Flying in an operations based environment

Part 1 of 3

By Peter Bondar

Or, how will EASA's strategic intent to move all non 'light' aviation into an operations and procedures based world affect the PPL/IR pilot?

EU-OPS is the first obvious and visible enactment of the powers of EASA when it comes to pan-European legislation affecting general aviation. It came into effect in August 2008 replacing, immediately and completely, the previous JAR-OPS 1 regulations that, subject to the whims of each national CAA, dictated how an operator should operate an aircraft for air charter or air taxi purposes. For the first time one common approach to commercial air operations was firmly and completely applied to 33 countries across Europe. No ifs or buts by each CAA (well, not many): get an Air Operators Certificate (AOC) in Poland and you can set up shop in the UK!

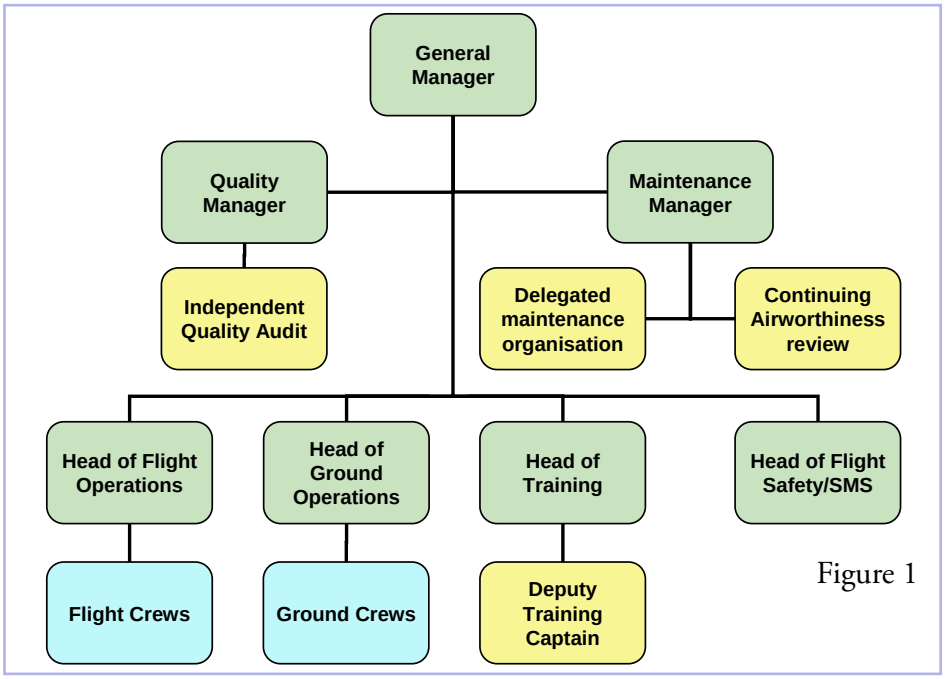

Figure 1

So how does it all fit together?

So how do the legalisation, organisations, structures and procedures interact and interoperate? At first, it seems an indecipherable mass of euro-babble with enough acronyms, code numbers and meta speak to wipe out all the cognitive capabilities of any pilot!

First of all there is the legislation. EU-OPS is otherwise known as Council Regulation (EEC) 3922/91 which first of all stated how air operations in Europe were going to be conducted. This was then ratified as European Commission Regulation (EC) 859/2008 of 20th August 2008. This meant that the regulator was the EU and that the local CAA was acting on their behalf to ensure that the regulations were enforced, managed and policed. This causes a lot of problems since the local CAA has now to work out the fine print, even if there isn't any fine print!

EASA publishes clarification material; in the case of EU-OPS, TGL 44 (temporary guidance leaflet) was published to help the CAAs and applicants out. TGL 44 is an example of an AMC (acceptable means of compliance) which explains in more detail specific points which, if followed, should be acceptable to the local CAA. TGL 44 itself points to other documents that further expand on certain subjects. By this stage one forest has already been felled and we can set to, wiping out the rest of the world's forests!

So EU-OPS, supported by TGL 44, tells both operators and the local CAA what should be done but not really how. It is up to the operator to decide how to comply with EU-OPS and TGL44.

Here we hit that bureaucratic fog of '*we cannot tell you what is the correct approach, but we can tell you, once you have written it, that it may be wrong, but we cannot tell you how to fix it*' syndrome!

Of course the simple approach is to merely copy an example you knew successfully got through the gloop system. Sadly, in the early days of such an approach there is precious little prior art and what there is, is jealousy guarded by its owners.

So what is an operations based methodology? There are four key areas:

- the operations manuals,
- the post holders,
- organisational structure and interfaces, and
- the procedures.

Manuals

Looking at each in turn we have the ***operation manuals*** which are written by the operator and essentially contain all the words that would be found in all the other publications but are brought together in one place. These are defined in TGL44 as having a minimum of four parts (more on this later), with each part covering a specific area of operations.

Part A covers the ***organisation***: who is in charge, how it works, who does what, and also covers standard non-airframe specific operational areas which are of much great interest to PPL/IR pilots. This will be covered in the next part of the article, including such issues as policy on take off; landings and alternates; policy on fuel planning; policy on de-icing etc. etc. It also covers how to calculate the allowable times for pilots on duty; how to handle dangerous goods; what do with a terrorist; and how to handle the after affects of a major 'incident'. In simple terms, it's a functional description of how ground and air operations are conducted, covering all

expected eventualities.

Part B is the ***aeroplane specific*** issues; performance mass and balance; normal and abnormal operations; and emergency procedures. In simple terms it is the aircraft flight manual with editorial bits added.

Part C is the manual that deals with ***planning***: what materials are used to do this; where the maps and charts come from and are stored; and how the various aerodromes are categorised from A to C; A being instrument approach type airfields and C being grass strips on the side of a mountain.

Part D is the ***training*** manual: this explains when everybody gets trained; who can train whom; how frequently they get trained; and, of course, it applies to ground crew and air crew.

At a minimum there are two further manuals, **Part Q** the ***quality*** manual and now also **Part S** the ***Safety Management Systems*** manual! Life is too short to explain the details of these in this article, since I fear most readers have long gone!

And other paperwork…

So now we have all the paperwork ready? Not quite so fast as we need to sort out the maintenance side of town. We need a **CAMO** (Continuous Airworthiness Management Organisation) who will make sure that our **CAME** (Continuous Airworthiness Management Exposition) is satisfactorily implemented by our chosen maintenance organisation with which we have a formal maintenance contract. Of course the CAMO needs to have its own manuals and its own quality system, which of course is not necessarily anything to do with the quality system you had in your operations area!

To give you an idea of scale for our own AOC application, which is for just two Diamonds Twin Stars, used for IFR operations in North Europe, we have compiled the following page/word counts as shown in the table.

So at a conservative estimate, not including the aircraft flight manual, G1000 and all other standard existing printed documentation, it takes around 650 pages or 125,000 words to create a document system for a simple two-pilot, two-plane AOC. The supporting documentation we amassed came to 2.6GB. We took three years to do this; hopefully others will do it more quickly. Since the maximum size of a Cambridge University PhD dissertation is 65,000 words I feel that I'm due at least two doctorates!

	Pages	Words
Part A General Operations	212	48,000
Part B Aircraft specific	188	33,000
Part C Routes and navigation	12	1,700
Part D Training	62	12,400
Part S SMS	30	4,400
Part Q QMS	39	5,600
CAME	41	10,700
Maintenance programme	6	1,700
Maintenance contract	10	2,600
SOPs and checklists	56	3,300

EASA post holders

So now we have the manuals we can look at the post holders. EASA allocates each required function to a separate post: fortunately, you are allowed to aggregate these functions into a smaller number of real people. A typical functional drawing looks like Figure 1. These functions can be provided by either internal or external staff: obviously you need a proper contract between any external staff and 'the company'.

Hopefully in a future PPL/IR world, the post holders will not have to be formally interviewed by the CAA, as is current practice.

I can see that the last remaining readers are about to put the lights out, so I'll rush to the end of this first part of the series. Next we need to tie this up with a series of ***procedures*** (which are of course written in the manuals).

In Part 2 we will look in detail at ***operational procedures*** and see how they affect the safety margins which results in commercial air operations being 100 times safer then normal GA (based on figures published by UK CAA reviewing all flying categories over last 15 years)!

Peter Bondar co-founded Diamond-Executive Aviation an air-taxi operator, who are the first company in the UK to complete the implementation of an EU-OPS based methodology for the launch of an air taxi service using the Diamond DA42 Twin Stars.

◀ P 15

be able to use it and have the ability to make a transition to it relatively easily, Desrosier said. But because the octane is lower, high-performance aircraft would need physical modifications, Desrosier said. Only 30 percent of the fleet using Avgas are high-performance planes, but they consume 70 percent of the fuel. They're the planes most likely to be used in commercial businesses. They would feel the biggest impact. '*We need to understand the effect to the fleet and what modifications would be available at what cost,*' Desrosier said. A second fuel undergoing testing is a synthetic bio-based fuel produced by Swift Enterprises in Indiana. It's high-octane and unleaded. So far, it's performed well and seems promising. Hawker Beechcraft's Bonanza G36 was the first to fly on Swift's fuel, the company said. The Swift fuel must still be tested and validated to ensure its compatibility with an aircraft's structures - the aluminium, hoses, seals, fuel bladders and fuel systems, Desrosier said. And its distribution and the ability to produce it must be determined at the cost, quantity and quality needed. The fuel is heavier, or denser, than Avgas. But it also has higher energy content, Desrosier said. Lycoming is not endorsing a particular company but sees promise in a synthesized high-octane fuel, Kraft said. Engine makers are testing unleaded fuel. Lycoming, for example, is making sure any new engine is capable of running on lower-octane unleaded fuel, Kraft said. Last year, it introduced an engine that can use whatever the fuel of the future will be. '*You have to be very much in tune with the fuel to correctly design the engine,*' Kraft said. '*That's really driving all of our research and development.*'

Time to demand auto-throttle in GA aircraft

Mulling over the recent crash of a Dash 8 aircraft in Buffalo, New York, Flying magazine columnist J. Mac McClellan concludes that while the automatic flight control systems in today's GA aircraft are '*simply fantastic,*' most cannot handle '*the third dimension of flight - airspeed control.*' McClellan says more training for pilots is only part of the answer. A basic, low-cost auto-throttle system is at least as important as autopilot, he argues. Though the technology is already available, he says, '*The avionics manufacturers can make such a system but they need to hear demand from airplane manufacturers and pilots.*'

EUROSTUFF

By John Pickett

European Aviation Safety Agency

Responses to EASA's controversial Notice of Proposed Amendment NPA 17 concerning Flight Crew Licensing will not be published until 2010. Currently it appears that there are no arrangements in place for further consultation after the publishing of the comments; however it is understood that there is pressure to establish a protocol similar to the one used, in the past, by the JAA. It is reported that there were over 11,000 responses from more than 27 countries.

European Parliament – boost for GA

The International Aircraft Owners and Pilots Association reports as follows:

'*Best News in a Generation – The European Parliament has given general aviation its biggest boost in modern times with the adoption of a resolution which guides the EC and Member states to adopt a raft of principles which would preserve, foster and promote GA across Europe.*' Resolution 2008/2134 (INI) sets out the importance of keeping legislation in proportion, recognising the differences between Commercial Air Transportation and GA in setting fees and charges, ensuring that GA has access to airports and airspace and accepting that GA has a vital role to play in Europe's transportation infrastructure.

IAOPA goes on to report that '*The resolution, adopted by a huge margin – 524 votes in favour, 74 against and six abstentions – now forms the basis of the European Commission's approach to General Aviation. The Commission is in turn the boss of EASA, which will find it very difficult to ignore the new landscape for GA.*' (See below).

European Commission vs. EASA

The EC recently sent a very strongly worded letter to the EASA. Sometime ago the EC urged EASA to assist in re-generating General Aviation within the 27 countries of Europe. Now the EC believes that EASA is not going the correct way about the requirements.

The letter from the Deputy Director General of the EC states '*The Commission is both surprised and extremely worried by the paper presented by the Agency (EASA) related to the adoption of the implementing rules linked to its extension of competences.*'

The letter goes on to say '*The reviewed calendar of rulemaking attached to the Agency's paper is unacceptable because it will be impossible for the Community institutions and the Member States to process simultaneously an estimate of 16 EASA opinions within 15 months.*'…'*The Commission believes that time has come to take clear decisions to steer the Agency in a different direction. In this respect it is essential to carefully consider the alternative of going back to the original structure, and wording (wherever possible) of JARs and ICAO requirements which should be transposed into Community law. This would certainly ensure a smooth transition and allow EASA to work calmly in the future on the ambitious improvements and shifts which have raised general concern and misunderstandings both from Member States and stakeholders alike.*'

The penultimate paragraph of the letter contains an unveiled threat: '*In any event the Commission reserves the right, in order to comply with the legal and institutional obligations imposed on it by basic Regulation, to proceed along the line described above.*'

Netherlands and ELTs

Yet another anomaly involving ELTs. Neither British or Dutch registered aircraft need have fixed ELTs in their local airspace unless…flying in and out of Dutch airspace. ICAO recommends that all aircraft carry fixed ELTs; however both the UK and the Netherlands have granted exemptions from this recommendation. But if the flight crosses an international boundary between the UK and the Netherlands then the Dutch CAA require an ELT to be fitted!

Life rafts recall

If you have bought a new Plastimo life raft life rafts (manufactured between 23 May and 30 October 2008) you should contact the company's customer service department. Quality checks have discovered a fault in the trigger mechanism. This means that the 'pull' required to inflate the life raft is much higher than the usual standard. See www.plastimo.com.

VAT in Europe

There has been a lot of publicity about Denmark applying 0% VAT to aircraft sales – for a limited period only now; however, the application of VAT to flight training varies within the European Union. This is particularly noticeable with regard to flight training for a professional pilots licence. For example, if a foreign national receives flight training in Romania it is VAT free. In the UK flight training for a private pilots licence carries VAT at the standard rate; however if the training is for a professional pilot's licence and the pilot intends to work on contract as 'self employed' the VAT may be claimed back. *Ed: usual disclaimer – take your own professional advice!*

Ticker Ticker Timex

One of the best gadgets that the writer has found recently is the Timex WS4 wristwatch. It has an altimeter, which provides a graphical display of the climb and descent, as well as the current altitude. There is a barometer displaying current weather conditions as well as forecasts for the next four and six hours, a thermometer, digital compass and a stopwatch – and it is water proof to a depth of 50 metres! All for about £150 (www.timex.co.uk).

GPS shutdown?

US Government officials are saying that their GPS system might start detonating in 2010. This could result in regular black outs and possibly the transmission of inaccurate position fixing. A study claims that mismanagement and lack of investment may cause some of the orbiting satellites to fail as soon as next year!

The bare essentials of safety

We have all, sometimes, failed to watch the safety video or read the safety briefing card on an airline flight. Air New Zealand, ever the innovators, they were world leaders in the conduct of long over water flights, recently used naked cabin attendants to solicit the attention of passengers. Their safety video features both male and female naked cabin attendants with seatbelts, life jackets and oxygen masks strategically placed. The video, which is currently being trailed on domestic flights, is apparently an outstanding success!

Swiss army knives

Some time ago I was stopped from carrying a Swiss army knife onboard a Boeing 747 long haul flight. I always carry one with me because it is incredibly useful. Loose screws on a cowling of a light aircraft, for example, can be quickly tightened with one of the numerous tools. Following the refusal to allow me to carry the knife I contacted the UK Department of Transport to ascertain the current law. A Swiss army knife can be carried on an aircraft provided the operator allows it. It must not have a lockable blade and the blade length is limited to 6cm. The details and a full list of prohibited articles can be found at http://www.dft.gov.uk/pgr/security/aviation/domestic/prohibitedarticles.

Happy Birthday

Happy Birthday to the Boeing 747 it is forty years old this year. One of the first airline pilots to fly the 747, Captain Hugh Dibley, describes it as trying to 'land a block of flats from the second floor window.'

Tecnam

The Tecnam P2006T has received EASA type certification and is likely to lower dramatically the cost of twin engine aeroplane flying. It uses two Rotax engines running on automotive gasoline. The aeroplane can carry four people and has a range of 450 nautical miles. At the time of writing it is unclear when the aeroplane will be certified for IFR operations but it could become an ideal instrument rating training platform.

ICAO English language levels

Recent incidents have highlighted the importance of comprehension of the English language. Eurocontrol is warning that 'go-around' instructions are not being complied with in some cases. In the Eurocontrol incident reporting database 'go-around' occurrences make up six percent of the total reported in the period 2007-2008. Two incidents involved pilots being given go-around instructions which were not acknowledged in the prescribed format, nor in any way which could provide assurance that they had been understood. ICAO DOC 4444 gives phraseologies for use on and in the vicinity of the aerodrome. ***Missed Approach:*** ATC '*Go-around*', pilot replies '*Going around*'. Expressions such as '*Going missed*' are not acceptable.

CO2 emissions trading

AOPA Germany and AOPA Denmark are working to try and clarify the situation concerning the CO2 emissions trading scheme of the EU. The scheme exempts 'aircraft below 5,700 kg MTOW and commercial operators producing less than 243 flights every four months, or less than 10,000 tonnes of CO2 per year'. The anomaly means that private operators of such aircraft would not be exempt and would have to pay!

◀ P 1

In the UK there is no life jacket readily available which incorporates a pouch or other means of incorporating the PLB into the jacket. At considerable expense I ordered a Switlik helicopter vest from the US. These rather overpriced products are the Rolls Royce of life jackets. Without going too deeply into a very long and sorry saga it turned out that life jackets are dangerous cargo and the shipper wanted more for transport than the already expensive jacket. The end point was that I refused to pay the shipping costs but had to pay for the jacket which was destroyed. Chalk up one more victory for the health and safety lunatics to go alongside confiscating nail files and shampoo.

A further irrationality - for which I can only blame myself - is that I regularly wear a jacket for the 20nm channel crossing but then spend long periods at low level in the circuit at places like Filton and Cardiff in training aircraft without carrying, much less wearing, a jacket. I have tried the constant wear jackets which sit in a small pouch at the waist but find them uncomfortable. I have now compromised by trying to remember to carry one within reach although I accept that the likelihood of getting it on in time is slight.

Which life raft?

I own two four man rafts. One, a high quality heavy Beaufort four-man was purchased over 20 years ago. A second mid-range US raft came with an aircraft purchase and is probably about 10 years old. Both had been serviced from time to time and another service was about due. I wondered if the Beaufort had reached the end of its useful life and it might be best to purchase a replacement. There is no doubt that Winslow is the best brand but they are very expensive, especially in the UK. They are also very heavy.

I had noticed the adverts for a company ***Survival Equipment Services*** (SES) located not too far from me in the depths of the Wiltshire countryside so I thought I would give them a try. I was pleased to find that they operate from large well equipped premises offering a wide range of services to individuals and world air forces. You get a personal and knowledgeable service from Del Hall, the owner, and his staff. He, and some of his team, come from an RAF armourer background and deal with parachutes, ejection seats and all sorts of life rafts and jackets. I asked Del if it would be possible to visit him when my rafts were inflated and under test. I would then take the opportunity to discuss with him his opinions of various safety products in order to make my purchases and write this article.

The first surprise was that my ancient Beaufort was in perfect condition and good for

P 20 ▶

◀ P 19

years more service. The only criticism was directed at some of its on board equipment (not much point having patching materials which are labelled "only use under dry conditions"). I have always been doubtful about what to do with the raft's tether. You are instructed to attach to a strong point on the aircraft and I assumed that there would be some carefully calculated weak link to stop the raft going down with the aircraft. This was not so. It is attached to the raft via a rip patch. This patch looked pretty secure to me and I was left with the feeling that there was some chance that it would either not release or would leave an impressive hole in the raft. Del's advice was to attach the raft to your person and or ensure that a knife was within reach. Being able to cut through a substantial line in trying circumstances seemed a little unlikely. One might envisage outcomes ranging from puncturing the raft to puncturing yourself. Neither was I entirely comfortable with the idea of being attached to a heavy object which might possibly fail to inflate. These concerns seemed to leave me little further forward in developing a ditching plan.

The mid range raft was also in good order and of reasonable quality considering its weight. You rely on a single air chamber so if that is punctured you are in trouble. Also there is no canopy. However for occasional use in relative warm seas it seemed an acceptable compromise. The great surprise was a near new raft which happened to be inflated in the workshop. This is the four-man model typically sold through mail order catalogues. I would not use it for children's paddling pool for fear that sharp toenails might puncture it. You did not need to be an expert to see that it bordered on the useless.

I had wanted to examine the SES refurbished one-man ex-RAF rafts advertised as the H.E.L.P pack (Hybrid Emergency Life Raft pack). I had expected to see a sturdy and adequate but perhaps rather worn and unappealing product but far from it. These rafts were a model which had been superseded by the RAF and SES had purchased the whole stock. Many appeared to have never been issued; however SES has completely repackaged them having replaced the survival contents with superbly crafted and thought through products. The end point was a compact high quality raft at a modest price of £499 plus VAT. I purchased two and they now sit on a second row seat. The idea is that in the event of engine failure my wife will place one raft on her knee. With its small size this is possible without interfering with the controls. There is also space to wedge the second raft between the seats in the front cockpit. I believe that this offers the best possible chance of us both emerging from a ditching with a life raft accessible to each of us.

Life jackets, grab bags and more

Even SES had no solution to the life jacket problem. Del entirely accepted my point but he can only offer a very militaristic jacket with many pockets which I felt would have been just too out of place in a Bonanza to be acceptable. I have compromised by finding a small fabric case (actually an old Garmin GPS case) which will nicely hold the PLB. This has belt loops which thread over the lifejacket harness and it sits reasonably comfortably on my waist. I should mention that the latest generation of GPS enabled 406 PLBs are considerably smaller than mine, almost mobile phone size and it may now be practical to keep them in a trouser packet.

In recent years I have been doing trips which have involved long over-water legs in areas where rescue services may be poor. I have also been involved in some longish legs over pretty inhospitable terrain. I have therefore put together a small grab bag. I am not entirely confident that I would succeed in doing the grabbing when ditching but it seems worth the effort. Depending on the perceived risk on a specific trip this carries some combination of shark/survival bags, desalinating or water purifying kit, first aid kit, water and survival food. If all this makes me sound like a survival freak this is not the case. I rarely venture into the outdoors and am keen on my creature comforts; however I hate the idea that there is a chance, however remote, that for want of a little forethought I might make a bad experience worse or in the extreme case make a survivable situation fatal.

Refurbished one man lift raft and H.E.L.P pack from Survival Equipment Services

Don't forget the hood

One final product which I purchased is the hood designed to fit over your head and the life jacket. Many years ago I was involved in an incident in which there were multiple fatalities and the deaths were by asphyxiation rather than drowning. This is apparently caused by constantly being hit in the face by waves. Of course this is irrelevant if you get in the dinghy but if you are reliant on the jacket it is something which gives you a tiny edge. It is perhaps worth noting that the inquest in the incident I refer to was of the opinion that if the victims had topped up their life jackets by manual inflation thus increasing the height of their faces above the sea by a small amount they may have survived. Unfortunately as yet I can find no satisfactory way of attaching the small hood pack to the life jackets so this remains a work in progress.

SES are expecting to offer survival courses. This will take a rather different form to the swimming pool dunker style course. They will use actual rafts and jackets on a large lake so that the waves and general environment will be more realistic. Of course this cannot address escaping under water but each approach has value. It is hoped that we can organise a specific course for ***PPL/IR Europe*** members.

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