

# Instrument Pilot

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## Time for a touch of optimism

By Paul Draper

There has been so much doom and gloom of late I thought it would be good to try to concentrate on what's good in GA affairs at present or on the horizon. A sample shows:

- Parliamentary Inquiry into the CAA – I was one of four from GA “grilled” at the hearing, but lightly and not burnt compared to that suffered by CAA’s Sir Roy McNulty and Aviation Minister Karen Buck! The final report should be out soon and I, for one, think the MPs got the message on the state of GA and am hopeful they will make recommendations that will help us.
- Parliamentary Aviation Group (PAG) – This is the cross party grouping of MPs that as part of General Aviation Alliance (GAA) we meet with to discuss current issues. They were helpful on the Inquiry and as some of you will know Gerald Howarth MP and Lord Rotherwick have raised questions, in the Houses of Commons and Lords, to assist GA. The next of our regular meetings is on 21st March. As GAA we are also organising another air experience day (the first was for Charlotte Atkins MP), this time for Minister Karen Buck.
- CAA Regulatory and Strategic Review – Roger Dunn (our Deputy Chairman) is on the Strategic Review and it should be reporting mid to 3rd quarter this year; if the CAA do take note of GA’s concerns then there is hope for improvement.
- EASA – Yes, it has teething problems in both financing and operations but the attitude seems to portray they have an intent to be more efficient – some 3,000 regulations have already been swept away and they are about to look at certification/regulation of sub-five tonne aircraft “with a clean sheet of paper”. Again GA is inputting and the result may well help us, although we need to realise we have IFR capable aircraft and the rules might be kept different on these. Licensing and ops is also being looked at as, in due course, will be foreign registered aircraft and we already know they recognise the main issues of certification and licence transfer problems. Another DfT Forum is being held in London on 3rd March and I shall be there.
- SESAR (the old SESAME) – I have been invited to attend the first SESAR Definition Phase Stakeholder Forum in Geneva on 28th March which will highlight the strategic role and importance of SESAR for the Air Traffic Management infrastructure modernisation in Europe. This is an opportunity to ensure we can input to this debate such that we GA IFR pilots are properly catered for in the new system; this is long term planning at the ground floor stage and there will be a series of future meetings.
- EAS – We joined Europe Air Sports mid last year and this is the first AGM post then. It is to be held in Cologne on 25th and

“Some 3000 regulations have been swept away and EASA is about to look at regulation of sub-5 tonne aircraft with a clean sheet of paper”



Tablet computers for aviation use, See review page 3

## Time for a touch of optimism

continued from page 1

26th March and I shall be attending. We are also members of the powered flying working group (see article in IP53) and it is important we input to cases EAS prepares on forthcoming EASA and EC proposals; their voice is growing in Europe.

- I won't mention ADS-B, PR-NAV & GPS approaches and new airspace classification proposals in detail; on all of them, and more, we are keeping watch and attending meetings. Handled in the right way and recognising we have to be catered for, will likely bring more technological improvements to aid our flying. But, handled incorrectly they will undoubtedly cause us major headaches!

Enough of regulation! What else is happening or on the horizon that is good?

- Spring is on its way! As I write this at the beginning of March it is snowing and recent weather has been against us for flying but that will surely change soon.
- PPL/IR Europe – We have some new volunteers from the membership to help us deal with the welter of proposals still coming from CAA and EC / Eurocontrol as well as house-keeping e.g. the website; we shall likely need some more. We are also considering how we can better organise the committee structure and I hope to say more on this at the AGM in Cambridge on Saturday 6th May. Sign up now (for details see IP53)! You should have already noticed the improvements to the web site – take a look now on [www.pplir.org](http://www.pplir.org).
- New technology GA Aircraft – Britten-Norman at Bembridge on the Isle of Wight have recently signed up to assemble new Cirrus aircraft shipped to them from the USA and test fly them before delivery into Europe. Actual sales of these and other types of the “new generation” aircraft, such as Diamond Twinstars, in the USA are exceeding all expectations and are likely to be big in Europe; Very Light Jets (VLJs) are set to follow. That has to be good news for GA which has not had really new types of aircraft for perhaps 30 years or so, and we should have a place to help their owners/pilots fly them. These “new generation” aircraft are sophisticated, have “glass” cockpits, are fast and to be used to the full need to be operated in an IFR environment. We should be able to access more of these owners as members and help them.

So, I hope you will agree it is not all bad! It's good to take stock from time to time; fingers crossed good progress can be made on all these matters and more.

*PS. Karen Buck resigned as junior transport minister at the end of February*



## EASA finance crisis – a touch of pessimism

At the DfT Forum held March 3rd I learned that EASA will run out of cash by mid year unless some solution can be found – and it surely will be as there is just too much political pressure to keep it going for it to be allowed to die. I mentioned the deficit issue in IP53 post my first meeting at this forum.

The main problem is that the December management board had a “crisis” budget to consider which showed it needed €45m to fund the year and yet fees and charges income estimate was only €20m. In a normal commercial company disaster would loom, as it did in NATS until the Government bailed them out, yet this time it will almost certainly be the EC, so don't worry, it is still your money as taxpayers (not just owners/pilots for once) that ends up paying! It is just possible that even Airbus would pay the deficit as it is vital for them to be able to continue having certification work on their aircraft continue; the thought of starting a new set up from scratch is just too much to bear.

In fact the management group refused to accept a budget that puts the organisation out of business and a financial review is in hand by Deloitte and that is due to report March 16th. This is likely to propose changes in their operational procedures, and assuming EASA continues, including:

- ☞ Model(s) for forecasting certification demand.
- ☞ Identifying unnecessary elements in the process of certifications e.g. the rules currently do not allow one trip to far flung places (e.g. Singapore) to certify five organisations, five separate trips are required (madness or what!).
- ☞ IT systems are a major issue as they are not “joined up”. The standard EC model was adopted at the outset so vital management information is not generated. A new system will evolve but will take two years.
- ☞ Fees and charges structure has to be reconsidered e.g. the fixed and variable costs relationship.

As a result the smaller end of the market (and that includes GA) is likely to suffer most.

In the light of all these issues it seems perhaps odd that they are canvassing opinions on a new Fees and Charges Regulation. Thus far it has been difficult to get a unified decision across all sectors;

and that is before one considers the different States involved.

As I mentioned in IP53 the CAA charges to EASA are higher than EASA charges the customer and one might think that is a major problem but it seems not as yet because some other States charge EASA less in fees than it gets; that will surely not be sustainable longer term.

There is more news on the employee front. EASA continues to recruit and plans to have 300 staff by end 2007 of which 230 are technical and 70 support. It is also possible they may have a few in regional offices (one in each State?) to more readily deal with smaller issues, such as GA matters.

CAA Chairman Sir Roy McNulty has now met with the EC over his remarks of concern about EASA in the Parliamentary Inquiry. The Government has assured the EC it remains committed to EASA but it needs to be made to work. It seems the CAA;

- ☞ has offered to assist (it has a well defined model that several other States have used),
- ☞ recognises the difficulty over the gestation period (with the move to Cologne not helping).

The relationships between EASA and the National Aviation Authorities are not right and there are thoughts of having external consultants to help on strategic issues. In addition the EASA Advisory Board has been asked to consider the appointment of non executive Directors to the main Board. That would likely be a good move and provided GA can get a representative in its own right for there is a danger of domination (it by the big players).

And we know there is a consultation out on the latest proposals to extend EASA's remit; our Government's position is that it will not agree to any extension until EASA is running smoothly with its present remit and that could take two years. DfT will hold a seminar on this in April and we will be there and also at an extra meeting to the normal cycle to discuss the results of the March 16th Deloitte report. DfT also wish to talk to us (and others) to obtain views on EASA's operation in practice.

Paul Draper



# Tablet computers for aviation use

By  
Jim Thorpe

**F**ujitsu–Siemens kindly lent me a couple of their current computers for evaluation. I have absolutely no connection with the company but their local dealers were immediately responsive when I contacted them with regard to the project. I also considered the Dialogue Flybook. This article is hardly intended to be a comprehensive survey nor is it highly technical. It is more in the nature of a few thoughts centred on the weakness and strengths of these machines and the rationale for my eventual purchase.

One unit is the Stylistic ST 502 tablet. The main reason for having this machine was its outdoor quality screen. It is really designed for use by delivery drivers or service engineers. I think it is unsuited to cockpit use by reason of its A4 size and its active pen based input system would be impractical in awkward cockpit conditions. I was also disappointed with the screen. Although I can accept that by reason of its technology it is more readable in direct sunlight it provides significantly less contrast in normal use.



*Fujitsu Siemens Stylistic ST502*

The second Fujitsu machine is the recently released Lifebook P1510 convertible tablet. This seemed to me to have potential. It has the ability to position the screen in a wide variety of orientations and has the flexibility of tablet style input with fingertip or an ordinary pen. The Flybook is very similar in form, dimensions and flexibility. Both these machines had very bright and readable screens in office conditions.



*Fujitsu Siemens Lifebook P1510*

In the aviation context the potential uses of convertible tablets falls into four areas:

- ⌚ General computing functions
- ⌚ Internet connectivity
- ⌚ Specialist software used on the ground
- ⌚ Software used in the air.

Almost all portables are capable of running MS Office style programmes and it is probable that most pilots will expect some degree of dual functionality from their machines. That said it seems to me unwise to compromise the aviation specific use of the machines by overloading them with too much software and I have taken the view that ease of use in a traditional office sense is secondary. This reflects reality in that any portable with a small keyboard is bound to be less satisfactory for continuous typing than a full size keyboard. The Lifebook and the Flybook struck me as reasonably useable for brief periods of text input or manipulating spreadsheets but this is not their forte.

However they can both accommodate external keyboards and screens. Connectivity is however vital. Both machines have a compact flash card and SD slot as well as USB ports. Both machines are equipped for Bluetooth, Wi Fi and Fast Ethernet LAN. The Flybook has even more with an internal modem and it can be used as a phone just by plugging in your sim card. I will return to the issue of connecting to the internet later since this led to me falling out with Fujitsu and the eventual purchase of a Flybook!

The functions needed on the ground are a flight planning program, the display of approach plates with Jeppview, flight plan filing and viewing met information. The screen resolution on both machines is more than adequate for the display of charts although of course with smallish screens (1024 by 600 pixels) some scrolling is to be expected. Jeppview charts displayed quite well but in an ideal world if the screens had been half an inch wider they would have fitted perfectly. The whole plate can be displayed at a smaller size which some but not all would find acceptably readable.



*Jeppview charts on Dialogue Flybook*

In the air some pilots might choose to use Bluetooth GPS and some sort of mapping software for navigation purposes. Personally I cannot see why one would wish to do this. A GPS, either panel mounted or handheld, is far superior to any laptop. Not many are yet fortunate enough to have multifunction displays which can show full size plates and these convertibles would perform this task at a pinch but personally getting the screen into a viewable position would represent too much hassle. In the USA these sort of machines can be used for the display of various down or upload weather services but as far as I am aware this is not readily available in Europe.

My main need is connecting via the internet to services such as weather and flight plan filing when in a hotel away from home. I decided to buy the Fujitsu on the basis that it was a major brand and Dialogue were unknown to me. I had subscribed to a GSM data card from Vodafone but I had been nervous that I would have problems in connecting via this card so had confirmed in

## More spacing behind Airbus A380?



The horizontal wake-turbulence avoidance distance currently required when a lighter aircraft is behind a heavier aircraft might have to be doubled when flying behind the new Airbus A380, according to preliminary recommendations by the International Civil Aviation Organization. Although final recommendations are not expected to be made before early next year, ICAO is calling for minimum spacing of 10 nm between a landing A380 and a following aircraft, twice the current FAA requirement. For aircraft flying behind an A380 on the same route and at the same altitude, ICAO is recommending that the minimum distance be tripled to 15 nm. The interim guideline also recommends an additional wait time of one minute—on top of today's typical two minutes—for smaller aircraft waiting to take off behind an A380. Minimum spacing was increased several years ago for smaller aircraft behind landing 757s following the Dec. 15, 1993 fatal crash of an IAI Westwind that lost control on final approach behind a 757. The NTSB attributed the accident to an "encounter with wake vortices from the 757." (*AINAlerts*)

## 8.33 kHz changes

Eurocontrol advise that a series of NOTAMs detailing planned frequency changes to reflect 8.33 kHz requirements has been issued but that it has not been possible to align technical changes with AIRAC dates due to hardware changes that are required. NOTAMs will be cancelled at appropriate AIP amendment timings. The list is at <https://www.eurocontrol.int/saforum/downloadAttachment.do?attachementId=2934&timeout=0>.

*It's good to see that the old "It's the computer's fault" excuses are still relied upon. - Ed*

## Timely reminders from GASIL

The UK's quarterly General Aviation Safety Information Leaflet contains many nuggets of information, some of which will be old hat to PPL/IR Europe members, or once were. So here are a couple of excerpts just to remind you what you already know:

### Slot times

UK AIC 70/2005 (Yellow 174) has recently been published to clarify aircraft operators' and pilots' responsibilities with regard to air traffic flow capacity management. While many GA pilots will not be concerned with these, a number of GA pilots do fly in

airspace which may be subject to flow capacity management (for example around major aerodromes in Europe). When traffic is heavy or weather restricts the number of aircraft which may use a particular piece of controlled airspace or instrument approach, the Centralised Flow Management Unit (CFMU) in Brussels may allocate Calculated Take off Times (CTOTs), commonly referred to as 'slots', to aircraft which file flight plans for flight in that airspace. Because of changing conditions, a flight may be allocated a CTOT considerably later than the intended takeoff time (or even suspended) after the flight plan has been accepted.

If you intend flying in airspace to which flow control is notified (in the UKAIP ENR 1-9) as perhaps applying, the pilot must check whether it actually does apply on that particular occasion. When departing from a UK aerodrome with an air traffic service unit (ATSU), the pilot should find out from that ATSU before starting engines whether flow control affects his flight. However, if the departure aerodrome has no ATSU (or it is closed at the time), the pilot or operator must check with the CFMU (or the UK regional [currently called London] flow management position) whether and what controls affect the flight, before his departure. Otherwise, the aircraft is likely to be prevented from entering the controlled airspace for which flow control has been implemented. Further information on flow control can be found in the UKAIP at ENR 1-9. As listed in the AIC, the contact telephone number for the UK Regional Flow Management Position is 01489588150, and for the Brussels CFMU itself 0032 2 7451910.

### "Long final"

The distance for the call of long final is known by everyone from student pilot to ATPL. So why do we hear it incorrectly used virtually every time we fly? Ah ha... it's the other pilots that don't know, so we'll remind them.

The UK CAP 413, the radiotelephony manual, describes the calls to be made in the traffic pattern at an aerodrome. However, readers have reported some confusion over the call 'long final', which is intended for use if an aircraft is making a straight in approach. CAP 413 indicates that the call can be made more than four miles but less than 8 miles from the runway threshold. Such a large band of possible positions gives another pilot no real help in spotting the aircraft making the approach.

The call of 'long final' is intended to replace the 'downwind' call, being made at the same distance from touchdown as the 'downwind' call in order to fit in with the circuit traffic and allow air traffic controllers and pilots at aerodromes without air traffic control to sequence the arrival of aircraft onto the final approach. In a relatively tight traffic pattern (without noise abatement manoeuvring), the distance travelled by a light aeroplane from the downwind position is a little less than a mile to abeam the end of the runway, one mile to the base turn, a little more than a mile on base leg and the necessary turns and a further mile on final approach. Four miles is the correct distance to make the 'long final' call. At an aerodrome with a wide or long pattern, the distance from the 'downwind' call to the threshold might extend to 6 miles - much further would take the aircraft outside the aerodrome traffic zone.

It is therefore probably appropriate for light aircraft to make any necessary 'long final' call when approaching four miles from the threshold, unless the pattern is known to be particularly large. Even if the pattern is large, at four miles an aircraft on an average ILS approach would be at 1200 feet - at a greater range it would be well above the circuit traffic and probably difficult to see.

## Mode S radar units on line

Burrington, Pease Pottage and Clee Hill radars are already radiating Mode S, Cromer is ready to radiate Mode S but implementation is being delayed. Fitful Head, (Shetland) will radiate Mode A/C for the time being, because of code limitations. Clee Hill and Pease Pottage Mode S are required for the delivery of Mode S Tools into LTCC. Cromer is, apparently, not essential in that respect and hence the delay in implementing Mode S at that sensor is not seen as significant.



No.	Site Name
1	Sumburgh Mode-S (EMS)
1X	Sumburgh Interim Mode-S (EMS)
2	Tiree MODE-S (EMS) (Ben Hynish)
3	Clee Hill 2 MODE-S (EMS)
3X	Clee Hill 1- PSR/Mode-S (EMS)
4	Pease Pottage PSR/MODE-S (EMS)
5	Burrington 2 MODE-S (EMS)
6	Burrington 1 PSR/MODE-S (EMS)
7	Debden PSR/MODE-S (EMS)
8	Claxby PSR/MODE-S (EMS)
9	Great Dun Fell PSR/MODE-S (EMS)
10	Not Used (was Tiree PSR/MODE-S (EMS))
11	Heathrow Main PSR/MODE-S (EMS)
12	Allanshill MODE-S (EMS)
13	Belfast PSR/MODE-S (EMS)
14	Cromer PSR/MODE-S (EMS)
15	Gatwick PSR/MODE-S (EMS)
16	Glasgow PSR/MODE_S
17	Heathrow 10cm MODE-S (EMS) update
18	Lowther Hill MODE-S (EMS)
19	Manchester PSR/MODE-S (EMS)
20	Perwinnes Hill MODE-S (EMS)
21	Sandwick (Stornoway) MODE-S (EMS)
22	St Annes PSR/MODE-S (EMS)
23	Stansted PSR/MODE-S (EMS)

## Nascar King Air Crew Lost Situational Awareness

*We've included this because, if it can happen to the professionals... Ed.*

The NTSB in its final report released in February 2006 said the crew of a Hendrick Motorsports King Air 200 lost situational awareness and overflew Martinsville/Blue Ridge Airport, Va., before crashing on 24th October 2004. IMC prevailed and the turboprop twin had been cleared for the localizer runway 30 approach. The pilots and the eight passengers were killed when the twin turboprop hit a mountain eight miles past the airport and one mile after initiating a "straight-ahead climb." The NTSB determined that the probable cause of the accident was the crew's "...failure to properly execute the instrument and missed approach procedures, which resulted in controlled flight into terrain." The crew also "...failed to use all available navigation aids to confirm and monitor the airplane's position during the approach." Investigators believe the pilots were relying on an installed Bendix-King KLN-90B GPS that was not IFR certified. The crew apparently had the localizer tuned in and they had an ADF and DME to rely on, but the NTSB thinks they were using only the GPS. (*AINAlerts*) Full report at <http://www.nts.gov/Pressrel/2006/060207.htm>

## UK firm launches block charter program

Southampton, England-based Club328 has launched a block-charter program called SkyClub. The entry-level package is 10 hours in a Raytheon Premier I for £30,000 (\$52,500). Last month, Club328 bought four pre-owned Premier Is for Raytheon Aircraft. SkyClub customers will also be able to buy blocks of hours in its other aircraft: a Dornier 328 Jet and a Dornier 328 turboprop twin, as well as a Hawker 700 and a Hawker 800. The company declined to provide prices for SkyClub membership covering the other aircraft types or larger blocks of hours. It said that other packages would be priced according to each client's requirements and factors such as whether a mix of aircraft might be required for different trips, the customer's flight profile and the airports that are to be used. (*AINAlerts*)

## General aviation manufacture at all-time high

The general aviation industry reached an all-time high for billings which totalled \$15.1 billion, a 27.2 percent increase over 2004. Year-end, worldwide shipments of general aviation airplanes totalled 3,580 units for 2005, up 20.8 percent over the previous year's total of 2,963 units.

"The outstanding 2005 shipment and billing figures demonstrate that general aviation is one of the brightest and most promising sectors of manufacturing," said Pete Bunce, President of the General Aviation Manufacturers Association (GAMA). All sectors of general aviation manufacturing experienced healthy growth in 2005. Piston airplane shipments experienced a 20.2 percent increase over the previous year. Total units increased from 2,051 in 2004 to 2,465 airplanes in 2005. Shipments of turboprops increased by 13.7 percent, up from 321 units in 2004 to 365 units in 2005. Additionally, business jet shipments increased by 159 units to a total of 750 airplanes. This is a 26.9 percent increase in shipments over 2004.

"Our growth shows that general aviation continues to have a dramatic impact on the way the world does business," said Bunce. "As the worldwide economy expands and becomes evermore interdependent, general aviation will play an ever increasing role in making business soar."

### 2005 VERSUS 2004 SHIPMENTS OF AIRPLANES MANUFACTURED WORLDWIDE

	2004	2005	Change
<b>Pistons</b>	2,051	2,465	+20.2%
<b>Turboprops</b>	321	365	+13.7%
<b>Business Jets</b>	591	750	+26.9%
<b>Total Shipments</b>	2,963	3,580	+20.8%
<b>Total Billings</b>	\$11.9B	\$15.1B	+27.2%



# TBMs to Timbuktu

Part two of a two-part adventure

by Ray Anderson



## *Bamako, capital of Mali*

After touching down, with a total flying time of 3 hours 40 minutes and with 84 gallons left we were initially sent to a remote parking area, but when I indicated a desire for fuelling, they revealed that all fuelling was by underground pipes on the main apron, so we had to start up and taxi there. By that time the next TBM was landing so he and then the others dutifully turned up on the apron.

Our UVAir handler met us and arranged the fuel on the main ramp and then we had to start and taxi later to the parking area where we had arranged for guards to keep watch over the planes.



## *Guard keeping watch at Mali*

By the time we arrived at the parking area, the Medicine for Mali people had all just arrived from Ankeny, Iowa via Paris (courtesy of Air France) and were there to meet us with local orphanage children playing instruments and dancing as a show of appreciation. MFM had arranged for lunches for all the kids so you can imagine there was an enthusiastic

turnout. When all the festivities ended the children departed and we unloaded all the aeroplanes onto the ramp and our various TBMs all showed a little more strut than had been visible for the last week. The MFM people brought 60 more bags via airline so the total payload was impressive and comprehensive in content. All of the bags were then loaded on 4x4 jeeps and buses and everyone except the pilots departed.

Then we began to experience “Mali time” as we waited at length for our ride. We were told not to wee in the long grass as cobras were there and there was no supply of anti-venom! As dusk settled, the mosquitoes appeared and we considered getting a taxi until we were told by the handler that they are dangerous and break down frequently, sensibly we waited for our transportation into town and our hotel. Our guards told us they would take shifts at night and stay 24 hours. They all had crisp uniforms and we left them confident they would do a good job given the wages that were being paid.

After reaching the hotel we experienced the quickest check-in in history, the entire group in about 30 seconds. The front desk had prepared everything including cards and keys all on a board for our group; we took them and ran, some to their rooms, others to the bar. The hotel lobby was not unlike any other you might expect. There were cell phones, a lobby bar, lots of suits and ties and a man dressed in desert garb handing out welcome tea from a camel leather tent in the middle of the lobby.

Our initial stay was somewhat fleeting as we had to do a “quick turn” because MFM had arranged a bus to take us to a dinner/zoo spot on the Niger. By the time we got there it was dark, so imagine us walking behind the tour guide with a small flashlight showing us porcupines, a python and an alligator, none of which were happy to see us shining a light at them and none of us particularly eager to stomp through the area in darkness. The entire group of MFM and pilots assembled at three large tables for a wonderful meal with speeches and thanks and we returned for what we hoped would be a nice rest at the hotel.

## *Planning the return*

I was able to use the hotel internet café (GPRS did not work in Mali) to check out the weather for the day after next. After assessing the wind and running some routes and models on Flitestar IFR I decided that instead of routing back via Grand Canaria and Biarritz to Cambridge – my original plan – I had a chance at a one stop trip via Casablanca. I did not want to leave too early from Bamako, and Cambridge would shut at 6pm. One plan was for three legs at full speed with 1 hour “tech stops” which would get me to Cambridge by 6pm. Two legs of 1,300nm were another option. If I had to divert on the route to Casablanca, to Agadir, I’d then fuel there and then dash to Biarritz, fuel there and then try to get to Cambridge by six – or overnight at Biarritz if that seemed impossible. The one stop routing would mean

flying more slowly, but having only one stop, meaning a similar elapsed time – and it would be very cool to arrive into Cambridge from Casablanca!

### *Timbuktu*

With the medicines unloaded, we made an early start the next morning for a “cultural” visit to Timbuktu – about 400 miles north east of Bamako. The aim was to take some of the MFM doctors and staff up there as well, using the now remarkably empty aeroplanes!



### *Approaching Timbuktu*

Once again we had filed flight plans, but were cleared for take-off early, and we flew procedural IFR over to Timbuktu – a 90 minute flight at FL270 with other aircraft at varying levels including one up at FL310 acting as our “AWACS”. The weather report for Timbuktu was no problem, and despite having to make a very rapid descent to make the airport – around 3,000ft/min – we had a trouble free arrival.

Timbuktu’s geographical setting made it a natural meeting point for nearby African populations and nomadic Berber and Arab peoples from the north. Its long history as a trading outpost that linked west Africa with Berber and Islamic traders throughout north Africa, and thereby indirectly with traders from Europe, has given it a fabled status, and in the West it was for long a metaphor for exotic, distant lands: “from here to Timbuktu”.



*It’s a long way(!), but the TBM arrives at Timbuktu*

Timbuktu’s most long-lasting contribution to Islamic and world civilization is scholarship. During the fourteenth century, important books were written and copied in Timbuktu, establishing the city as the centre of a significant written tradition in Africa. A new airport had been built for the large number of Hajj flights to Medina, but once inside we found it was rather dark and empty. We all had to give up our passport to a young tour-master called Mohammed, and fortunately they came back a few minutes later with our Timbuktu stamps in.

Our tour round the town was very interesting. We visited the largest mud mosque, the library, a monument to the end of a war within Mali and the museum which surrounds the actual Timbuk Tu (Timbuk’s Well). The rains had come a few days before we arrived, but the months before that had seen severe drought – so many of the tribesmen from the desert had moved into town – pitching their tents in the streets which were now frequently flooded, but the children seemed to enjoy splashing about in the cool mud. For lunch we enjoyed a baked goat stuffed with couscous and drank Coca Cola and bottled water before returning to the airport in a fleet of about ten four wheel drive vehicles.



### *A Tourag tent in the centre of town*

Another uneventful return trip back to Bamako ended up with a gaggle of TBM’s all arriving at about the same time, all keen to be first in line for fuel. Judging by the TCAS display and listening on the radio, there were definitely some white lies being told to ATC – especially pilots reporting lower than they were to enable the higher people to start their descents sooner.

We all were refuelled on the main apron and then were supposed to taxi to remote parking for the next two days. Fortunately, after some discussion with the airport manager, who was pleased when I gave him some ring tones for his new Nokia 6680, I was able to negotiate a stand on the main apron – ideal for me as I needed to taxi

before dawn. I also spent some time double checking my flight plan was in the system (it wasn’t – and had to be re-filed) and checking the necessary over-flight notifications had been sent to Mauritania, Morocco and Mali governments! On returning to the hotel, one last check on the weather showed an average of about 30 knots headwind from Bamako to Casablanca and then an initial wind at about 45 knots from the northwest, shifting to abeam over France and then slightly helping over the channel and into Cambridge. My dad and I then packed our bags and went to sleep – leaving the others to go for a dinner with the wife of the president of Mali – we had to get up early in the morning, but they were staying two more days!

### *Return flight*

My phone alarm went off at 05:00 and we quickly showered and went by a car provided by Universal Handling to the airport. They had to wake up the gate guard – who was asleep on a bed outside the gate, and he let us drive on to the apron. With a pretty thorough pre-flight check completed using high power torches, we were ready for launch! The hope was for a very fast start and taxi to save fuel. Each minute at idle power on the ground is about 4 nautical miles of range. Start was at 05:42, followed by a taxi in total darkness, save for the aircraft lights and small taxiway edge lights

Takeoff was at 05:52 into an uncannily dark night. Our initial clearance was back towards UNADO, but on advising the ATC we wanted to route towards Morocco, he changed the clearance out towards EREMO. The other good bit of news was a clearance up to FL330. My aircraft has not been upgraded to RVSM yet, so in Europe I’m limited to FL280. However, the higher you go, the better the fuel endurance and range, so it was most welcome. As we climbed through FL200 we saw the sun rising above a heavy overcast layer – which surprisingly stayed with us for the next three hours – almost to Morocco. 1,000 miles of desert covered in cloud! Once established in the cruise we decided to mark off 15 minute checkpoints on the map and do as many checks as we could think of at each one – to stay alert!

There was a slight cross-wind but nothing significant, and we set up for the cruise – wanting to be sure to make Casablanca with fuel to spare, rather than having to divert and do the three leg plan. The outside temperature was quite hot – at -33C, which did not help, but with 60% torque (the way you control power on a turboprop) we were getting a 255 knots true airspeed and burning

## TBMs to Timbuktu continued from page 7

36 US gallons per hour. This gave us a projected landing fuel of 70 gallons at Casablanca – which was perfect. The computer predicts fuel based on steady speed and consumption, so it does not realise that when you descend fuel burn will increase. On the other hand the speed rises during descent and if you descend at between 1,000 and 2,000 fpm the estimate is almost always right within a gallon or two – provided there are no surprises like holds etc. The other factor is that as you get lighter, you get faster.

### *Casablanca*

After nearly three hours in the cruise we were doing 258kts, helped slightly by the IOAT reducing to -36C. Apart from a descent to FL280 once RVSM airspace was reached (an IOAT of -22C giving us 254 knots for 60% TRQ and 37GPH) all was pretty quiet – the usual position reports generally being impossible as Dakar control was unreachable. We listened out on 121.5 in case the Mauritanian Air Force should pop up, but that did not happen. We descended into crystal clear Morocco, and positioned visually for Casablanca – making an orbit to add wake separation time behind the Saudi 747 that slotted in ahead of us. Casablanca turned out to be much bigger and busier than we had expected. Dozens of 747s and A330s parked on an apron several miles long were loading pilgrims from buses. We were parked near a small control tower, and left to our own devices. The goal was a one hour turnaround, to make Cambridge by its 6pm closing time. Unfortunately this was not to be. Landing fees were relatively easy to pay in an office under the tower – only Euro 25! The hard bit was getting fuel. Six requests at the tower, two requests on the radio and two phone calls to the airport administrator and nothing happened – apart from us getting very hot on the baking concrete.

### *Cash for fuel*

After over an hour, a commuter B1900 parked beside us and the pilot kindly offered us some bottles of water. A bowser arrived for him, and during fuelling promised to do us next. Unfortunately, after fuelling he headed off to another similar aircraft

that arrived near by! Further pleading with him, and with help from the B1900 captain he agreed to fill us up for “Euros Cash” – which we finally managed to do. The fuel cost only Euro 400 including a “tip” – so not too bad.

By this time we were considering our diversion options. The winds were slightly unfavourable, and we did not expect to be able to get to Cambridge in less than five hours. Fortunately, on calling Cambridge, they told us they had a medical flight due in later than six and would be open for us if we arrived an hour late – Phew! So, once again trying to get a swift taxi – and failing this time due to the sheer size of the airport – we were airborne and cleared straight up to FL280 heading in the right direction at last.

### *Final leg*

On reaching FL280, our first priority was to establish a long range cruise. I have a simple technique for doing this. I simply set up for a fuel flow of 40GPH – which gives 245-250kts TAS depending on weight and IOAT. This makes the maths easy. Typical fuel remaining at top of climb to FL280 is about 250 gallons. So that's 200 gallons with a 50 gallon reserve – about 1,200nm to the reserve. Since the climb gets you about 60nm into mission, this would mean a 1,260nm flight with one hour flying at the end of it, and that was roughly what we needed. We could have slowed down a bit more to extend the range further, but decided that a five hour flight was long enough for us, and that we would rather divert to Dinard or Southampton rather than be late at Cambridge.

The winds aloft turned out to be as expected. Slack over Gibraltar and then going up to 80-90 knots with an adverse factor of 20-30 knots over Spain, becoming crosswind over the Bay of Biscay and a slightly tailwind near Nantes. We were given two lucky breaks. Firstly a direct routing from Spanish ATC of VEJER to BELEN (40 miles north of Bilbao) – probably saving us about five minutes on the MAR VTB DGO BLV route and then from BELEN French ATC kindly gave us direct AKIKI (vs. LAGOR NTS REN) – again another five minutes or so. This meant that we arrived near Nantes feeling very pleased, slightly ahead on fuel, about right on time, and with everything pointing to the arrival

of slight tailwinds to speed us in to Cambridge. We had even requested the most fuel optimum LOREL 2C arrival into Cambridge.

### *Interception*

You can imagine our surprise therefore when the Brest ATC suddenly advised us “N702AR you are being intercepted by French military aircraft. We see them 30 miles ahead of you.” Nothing showed on the TCAS, and obviously we were wondering what we had done! We advised ATC we were listening on 121.5 and we quickly pulled out the interception procedures leaflet I had in my flight bag. With layers of cloud above and below, we started scanning to see if we could see the other aircraft. Brest advised us they were “Coming just behind you.” – but we saw nothing either visually or on the TCAS. We were a bit crushed thinking we would have to spend the night in some French military base – or worse still in a prison. It had been too good to be true!

After a few more minutes, the controller advised us in a matter of fact way “The other aircraft have gone away”. That was that! A few more minutes and the tailwind started to come into play – about 10 knots. The London VOLMET was giving Luton 230/15 9km in rain SCT 3000 BKN 5000 with Stansted similar, so I eased up a bit on the power to about 44 GPH and 265kt – 275kt GS – for a nice run into Cambridge. The rest of the run was relatively uneventful, apart from some surprisingly heavy icing and bumps descending through FL130 north of London.

### *Cambridge*

The usual “pretty high at BKY” approach into Cambridge was followed by a nice visual approach into Cambridge, just as the sun had set. I floated a bit – being light on fuel and with the interior very light, but still made “Taxiway Charlie” without a back track (my 600m landing challenge). Landing fuel on board was 61 on the gauges and 53 on the totalizer. Perfect! By the time we were on the apron with the covers in place it was 7.15pm and dark! With no customs to meet us, I called my wife, and was asked to pick up a Chinese takeaway on the way back home. Great! I was absolutely starving! Mission well and truly accomplished. 

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# Temperature management for best engine life

by Jim Thorpe

I have generally regarded shock cooling as amongst the many myths and half truths surrounding aircraft engine operation. Presumably instructors themselves are fed inaccurate information as students which they in turn inculcate into each new generation of pilots. Although doubtful of its existence I have never really looked into the subject until I was moved to reply to a letter in an aviation journal whose author was convinced that it was possible to shock cool by facing into wind on the ground. This struck me as ludicrous in the extreme. Not being one to churn out old prejudices of my own (at least in a forum where I might be caught out) I have done some background research on the subject to clarify my views. Perhaps a good starting point would be to list the aspects of engine temperature that most pilots would accept as intuitively correct.

## Assumptions

At some temperature Aluminium melts. At some lesser temperatures it loses a proportion of its strength

1. Most aircraft engines have evidenced cracking in various locations but cracking does not occur equally frequently in all engines.
2. Those engines which produce most heat are likely to be most susceptible to problems
3. Those engines least able to dissipate heat are likely to be most susceptible to problems
4. The effects of multiple heating / cooling cycles may be different from single heating events.
5. The effect of heat cycles will not be the same in all temperature ranges that is to say a high rate of change from a low temperature does not have the same effect as a high rate from a higher temperature.

Temperatures will be given in centigrade. For those who think in Fahrenheit and can't be bothered with the conversion formula; doubling the number will do as an approximation.

Points 2, 3 and 4 are consistent with the reality that Continental engines are more crack prone than Lycoming and that turbocharged engines are at worst risk. To be fair to Continental they are the engine of choice for higher powered larger engines while Lycoming engines are more often smaller non-turbo charged units. Larger engines normally have more associated bits hence tighter packed cowlings and the potential for worse cooling. They then fly higher where the thinner air's poorer cooling properties are not offset by the lower outside temperatures. As it happens my engine, for which I have had engine analyser (EA) data, is a Continental TSIO 520UB in a Bonanza, one of the most crack prone and poorly cooled engines in the GA fleet.

## Glider tugs

There had to be an exception and one of the few systematic investigations of cylinder cracking was on small Lycoming engines and was done by the British Gliding Association on their tug fleet. They had a severe problem with cylinder failure. However their flight profile was extreme. Many full power slow climbs followed by closed throttle maximum rate descents. Their engines scarcely experienced cruise flight in their whole working life. They addressed this by changed operating procedures to allow for just a couple of minutes at reduced power after the glider drop and before beginning the descent. This relatively modest action almost completely eliminated the cracked cylinder problem. This is consistent with the idea that a high rate of cooling is less damaging if it commences from a lower temperature. In support of this analysis it is interesting to consider para drop aircraft. They do not in general have the same cylinder problem although they fly what might be thought of as the same flight profiles as the glider tugs and have larger engines. They struggle up to 10,000 feet at maximum weight and then plummet earthward

to pick up another load but they don't do as many trips and more importantly they fly level at low power settings while the parachutists exit the aircraft. It would appear that only a few seconds of reduced power in level flight reduces temperature enough to significantly reduce the cooling effect of the descent.

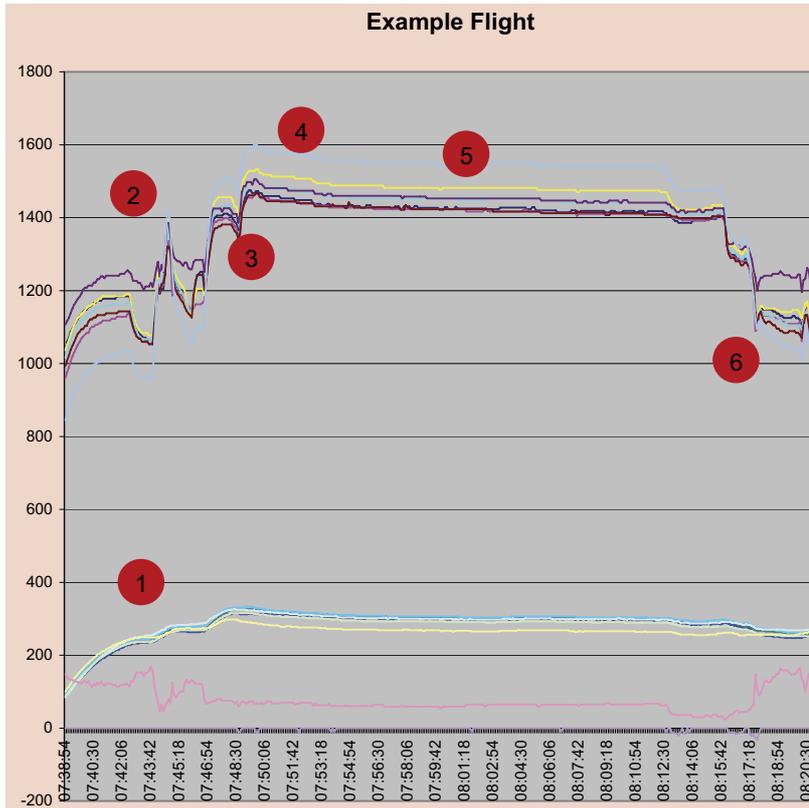
There are some interesting experiments around exposing cylinders to very high temperature. One of the most brutal was to get a cylinder red hot in an oven and chuck it in a bucket of acetone. This had no effect whatsoever but of course no one repeated this several hundred times. A thought provoking analysis available on the web covers the thermodynamic impact of water evaporation when an engine ingests rain. This appears to indicate that if shock cooling mattered it would be unwise to stand under the final approach path in a rainstorm unless you wanted to collect scrap engine parts in large quantities. However in reality no one has connected rain with engine life so it would appear that a repeated series of heat change events is needed to cause a problem.

## Maximum CHTs

I say heat change events because I cannot see why, in this context, cooling differs from heating. What we are looking at is rate of change of temperature. The engine manufacturers generally indicate 20 degrees per minute as the maximum acceptable rate of cooling. They tend to redline their CHTs around 240. However there is a lot of data to indicate that 200 to 210 is a better maximum with 180 as a target continuous cruise CHT if you want long engine life. Intuitively the times that most engines experience the greatest rate of change of CHT is after start and in the climb. My analyser samples data at six second intervals. Its first reading is always about 30 degrees so presumably the first few combustion events produce this in a matter of two or three seconds! After one minute the CHTs are 60, after two minutes 80.

“ Engine manufacturers generally indicate 20 degs per/min as the max acceptable rate of cooling ”

“ Engine starts are not an issue because the ‘shock heating’ takes place from such a low base ”



**Typical flight profile using EDM Engine Analyzer**

EGTs/TIT temperatures in deg F are shown at the top and CHTs at the bottom. The single pink line shows the maximum difference in CHT temperatures. Notice:

- 1 Rapid increase in CHT after engine start
- 2 Surge in EGTs as aircraft starts to taxi
- 3 Rapid increase in both EGTs and CHTs as aircraft climbs followed by a drop in EGTs as the aircraft levels off
- 4 Further increase in EGTs as the engine is leaned for the cruise
- 5 Stable temperatures in the cruise, but the hottest cylinders are not the same as on the ground
- 6 EGTs fall off in the descent but CHT temperatures are maintained by careful engine management

Over the next three of four minutes while taxiing the engine tends toward a steady state figure of around 130/140. It would therefore appear that every start produces several shock heating events. On take off two minutes of full power climb drive the temperatures towards 200 degrees so once again we have regular shock heating. In passing it is worth noting that pulling back power in the climb may well increase temperature to a damaging extent since full throttle enrichment gives significant cooling. This cooling loss will probably be greater than the reduced heat output at lower power settings also reducing power prolongs the climb where the aircraft attitude and speed may make cooling airflow most marginal. There is thus a strong argument for conducting all climbs at full power and higher airspeeds. This has the additional benefit that the prop is more efficient at higher airspeeds and will deliver additional power without additional fuel consumption.

**Levelling off at top of climb**

I have also come across some interesting data on how levelling off affects temperature change. A pilot documented several experimental flights. He did this after he noted that his EA cooling alarm would always sound if he levelled off for the cruise while maintaining full power.

He discovered that a modest power reduction at the same time as levelling off eliminated the alarm. One might argue particularly if climbing at full power that reducing to cruise power a couple of hundred feet prior to levelling off might be the optimum way of operating for long engine life.

In fact engine starts are not an issue because the ‘shock heating’ takes place from such a low base. Below some temperature the reserves of strength in the engine are such that no rate of temperature change will have a detrimental affect. One cannot make that argument for the climb where the fast positive change is happening towards the top of the allowable temperature range. This would seem to imply that shock heating in these circumstances could be real. The same argument would also apply to shock cooling when levelling off. We can, it seems, generate a high rate of change at the top of the scale. I do not notice this on the B36 where in general I am trying hard to get the hottest CHT down and it seems to take an age to bring the CHT down from just over 200 to my preferred level of about 180. Possibly this phenomena is installation specific in some way. I think we could generalise by saying that a high rate of change in CHT in either direction is undesirable in the range 150 to 200 degrees.

Intuitively OAT and speed would have a big affect on CHT but the considerable academic research done after WW2 indicated that cooling was largely directly proportional to the pressure differential across the cylinders. This may bear on the fact that the hottest cylinder changes according to the flight attitude of the aircraft. In the B36 one of the rear cylinders is hottest on the ground but in flight it is the most exposed front cylinder which is always hottest. This is counter intuitive unless one considers that cooling stems mostly from the air being forced between the cylinders and not the air blasting in the front end. Certainly there have been many experiments that demonstrate that tiny holes in the engine baffles bleeding cooling air away from the top of the engine are bad news. A cumulative area equal to a 50p piece can raise the CHTs by 10 degrees. The baffling on the average engine is in poor condition and will repay the money spent on sorting it out.

**Descents**

A most appalling bit of received wisdom on engine management is the way some people initiate the descent. The mixture full rich stick the nose down school are squirting lots of fuel the engine does not need, probably cold soaked fuel after extended time at altitude, right onto the most crack prone area of the

cylinders. The only logical place for the mixture to be full rich is for a full power go around. To account for this rare event we waste fuel and do some damage to our engine on the premise that pilots are too dim to be taught that large power changes should not be made without considering the prop and the mixture. The logical place for the mixture to be in the descent is wherever produces the highest EGT or TIT since this warms the cylinders and slows the rate of change from this potentially high starting point.

Not related to temperature but worth mentioning is that another very damaging practice for descents is to reduce manifold pressure while maintaining high revs. A more effective technique would be to bring the revs back to the lowest convenient setting allowed by the engines operating parameters which can be surprisingly low. In the B36 for example this is 1800 RPM.

### *Dropping the gear*

An only slightly less bad descent idea is regularly dropping the gear early. This may be driven by operational necessity from time to time but it does your gear and all its dangly bits of limit switches and operating rods etc no good to spend time being blown about near their limiting speed. There is also the point that having nicely controlled your CHTs it is rather undesirable to drive them up again by dragging round the circuit in a low speed, high drag, and high power configuration.

I will conclude with a summary of positive suggestions on engine management. First the disclaimer. Think about your POH or flight manual. You might also recall that in recent years they have probably been written by the marketing and legal departments rather than engineers. The information they contain may not be consistent with engine manufacturers' data or indeed the same airframe manufacturers' data from earlier less litigious times. I assume that you do not have balanced injectors and so do not run lean of peak. I also assume that you have an engine analyser and thus have good information about your CHT, EGT and TIT.

After start, lean as hard as possible. You will do the engine no harm and some good. If you really lean hard and you do forget to go full rich before take

off (potentially very damaging) the engine will remind you by stumbling as you open the throttle. Climb at full throttle and consider maintaining the highest speed which delivers an acceptable rate of climb. At the top of the climb or slightly before the top reduce power to cruise settings but leave the mixture one to two gallons rich of the book cruise setting. Then when the aircraft is settled down and other aviating tasks are out of the way the CHTs will already be on the way down. Then switch your attention to the TIT/EGT and lean to whatever you consider an appropriate value probably something significantly lower than the peak the manufacturer recommends in my case 850 against the 900 red line. Remember this is a rich of peak regime while in fact I prefer lean of peak but that demands its own discussion.

### *POH recommendations*

Please note that here you can reduce your engine life even by following the POH. It is likely that your recommended max power setting is a few degrees rich of peak just where it will drive the temperatures highest. Your engine will be coolest either well lean or peak or well rich of peak. Try to keep your CHTs at or below 180 in the cruise but certainly below 200. Your tools here are cowl flaps, additional fuel and power settings. It's hard to generalise. Some aircraft respond well to cowl flaps others installations have less effect. Extra fuel will cool things down as will lower power settings. Again all this refers to rich of peak operation. If by any of these actions you can bring you CHTs to 180 or less prior to initiating the descent then the possibility of ill effects, even from an immediate ATC descent instruction, is much reduced and possibly eliminated. After all, the engine is at 150 on the ground prior to take off so you only have 20 or 30 degrees to lose. The experts recommend leaning in the descent to keep the EGTs reasonably warm. As explained I am not sure this matters that much but there is no point in wasting fuel and since as you descend the mixture will become richer anyway. You are at low power settings so being too lean is not a danger.

The next point where temperature may become an issue is levelling out. Particularly if you have dropped the gear in a turbocharged aircraft you may

need eight or more inches of manifold pressure to fly level. With lower speeds cylinder temps may rise to undesirable figures and more fuel or cowl flaps are your only tools. In reality if this happens you will probably go full rich because you are too busy for careful mixture management. There is no easy answer to this other than trying to consistently drop the gear at glide slope intercept or the VFR equivalent of the base leg. I do accept that you may see this as increasing the risk of gear up landings and prefer to take the gear earlier but then you pay the penalties of extra wear and tear and increased fuel usage. I see PUFFA or equivalent checks as vital for the U and the A but personally I don't see any need to touch the mixture or the prop unless there is some indication that a go-around might be necessary. Going prop full fine just creates noise to no good purpose. Going full rich just wastes fuel and cokes up the engine. Try to discipline yourself never make any throttle changes at any stage of flight without changing or considering changing the prop and mixture settings at the same time.

### *After landing*

That brings us to the after landing phase. Here it is pretty impossible to do anything to hurt the engine. Taxying with mixture as lean as possible minimises plug fouling and may help with the subsequent start. If you have followed this regime, the often recommended four minutes turbo cooling at 1000 RPM is probably unnecessary since the turbo will already be as cool and as wound down as it's going to get. Confirm this from your TIT.

I must give credit to the work of John Deakin, George Braley and John Ekalbar in encouraging me to think more logically about engine operation. You can easily track down their work with a web search. I freely admit that I don't as yet fully live up to the engine management ideals sketched out in this article but I am trying. If there is any interest there is probably scope for similar discussion on running lean of peak in turbocharged aircraft which is not quite the same as the relatively well publicised techniques used with turbonormalised engines with balanced injectors.

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# Pilots' Talk

## Dates for your diary

### "How to Fly the North Atlantic Safely" at Coventry on 22nd & 29th April 2006

Ed Carlson (250+ crossings) will be teaching his excellent one day course on "How to Fly the North Atlantic Safely" at Coventry on 22nd and 29th April starting at 9:30 am. The charge for the day is £199 and includes Ed's great workbook and lunch. This will answer all the questions you have about how to do it safely, airport, entry formalities and even flying in Canada & the USA. To register, please call PPL/IR Europe member Dave Underwood +44-(0)-7785705-074 or e-mail [dcunder@aol.com](mailto:dcunder@aol.com).

### PPL/IR Europe AGM 6th May 2006

The AGM will be on 6th May 2006 at Cambridge and, as always, will be complimented by interesting guest speakers and offer the opportunity to catch up with old friends and make new ones. Some radical ideas on the evolution of PPL/IR Europe are expected to be discussed so don't miss this meeting.

### PPL/IR Europe trip to Sicily, 17th - 21st June 2006

This trip is full and excellently supported with 11 aircraft and 20 people which is about the limit for the hotel and airfield.

### 14° East, Salzburg – Cape Town – Salzburg, 14th July – 27th August

I am committed to two of the three legs of this trip with fellow members Dave Massey and Bill Tollett using my B36TC Bonanza. We are short of one pilot for the return leg from Nairobi to Salzburg. This will take about 16 days in August. An IR is not essential. Dave is an instructor so it might be a great opportunity for someone with an IMC to build experience and skills. See the organisation website at [14east.org](http://14east.org) or contact me - [jjm@tredunnock.com](mailto:jjm@tredunnock.com) (Jim Thorpe)

### September 22nd to 24th - lunatic aviation festival week

Although we have had, and continue to have, success with formal trips, they do require a bit of effort to lay on, and require commitment well in advance by a number of pilots to make them viable. It has been suggested that a more informal short trip requiring minimal organisational effort and a lesser need for advance commitment might encourage more people to participate either on a planned basis or at the last minute.

There would be no commitment to a particular program but the general expectation that participants would like to share an informal group meal and spend some social time together.

To kick this off I am proposing a destination for September. All I will do is get a commitment from a couple of other members to ensure that there is some demand. I will research a couple of hotels and publish their contact details and rates. It is up to individual pilots to book direct. I will also make sure that the airport does not pose any unusual problems but again individuals will file their own flight plans etc. Once on site informal decision can be made on the degree of sharing of taxis or hire cars, the location for meals or whatever else seems most appropriate. In no sense will the initiator be an organiser or take specific responsibility as is the case with more formal trips.



### Lunatic aviation festival, St Hillaire

Every September the French have a lunatic aviation festival week in the village of St Hillaire. This involves them throwing themselves off a plateau in every form of lightweight flying machine known to man

in reality or nightmare. In the evenings there is entertainment in the streets and in general it appears to be an extended party with an aviation theme. See the website [www.coupe-icare.org](http://www.coupe-icare.org). I have no personal knowledge of this and would welcome input from anyone who has actually attended. Chambéry is the nearest IFR field though there is also a closer VFR possibility. Put 22/23/24 September in your diary. If one or two people who really like this idea would care to commit in principal now please drop me an email. Expect more details in a month or two when I have had a chance to look round the area. If you have favourite or potential destinations ideas you would like to organise on this minimal work basis drop me or the meetings secretary (page 19) an email. [jjm@tredunnock.com](mailto:jjm@tredunnock.com) (Jim Thorpe)

### Refresher workshops exclusive to PPL/IR Europe members

A great opportunity to update and enhance your IFR knowledge and skills, and particularly suitable for those who have recently gained their IR. Practical sessions covering such topics as flight planning, dealing effectively with ATC and in-flight problems, CRM aspects (managing the flight), safety matters, updates and an opportunity to practice in the latest type of simulator. Expert advice and guidance from experienced pilots/instructors, with back-up support available. Workshops will be held on the following Saturdays, 1030 to 1600 hours; 3rd June 2006, 9th September 2006 and 2nd December 2006.

The workshop is subject to a minimum of four confirmed delegates four weeks in advance (and to a maximum of six delegates). Cost (including VAT) £150.00 - payable at time of booking. These courses are run on a 'not-for-profit' basis and take place at Professional Air Training Ltd, Bournemouth Airport. Arrive by car or air. For further details and booking: Tel. +44 1202 593366. Fax. +44 1202 574020. email [info@pat.uk.com](mailto:info@pat.uk.com)

These workshops are strongly recommended for continuation training by the PPL/IR Europe Executive Committee as contributing to flight safety.

## Where can I find an online course for better aircraft icing awareness?

The National Business Aviation Association advises that NASA has two free online courses for pilots who make their own operational de-icing and anti-icing decisions on the ground or encounter icing in the air. The first course, "A Pilot's Guide to Ground Icing," discusses the risks of contamination, cues to alert the pilot to ground icing hazards and actions to help ensure safe operations. The second course, "A Pilot's Guide to In-Flight Icing," addresses the effects of ice accretion on performance and handling and provides tools pilots can use to deal with in-flight icing with emphasis on avoidance, detection and exiting. In both courses imagery, case studies, pilot testimonials and interactive elements are used to inform pilots and help them make better operational decisions. The NASA courses may be found online at: <http://aircrafticing.grc.nasa.gov/courses.html>

## Airfield Notes

We have introduced a new service in IP and on the website giving information about airports likely to be of interest to group members. There is no suggestion that these notes are comprehensive. They are not intended in any way as a sole data source and we aim for the minimum of duplication of detailed information readily available elsewhere. However they are written by pilots with recent experience of how things work in practice and we hope they will smooth your arrivals and departures be they VFR or IFR. We hope that members will contribute information on airfields they know so that the resource can grow quickly. If you visit somewhere and find things have changed please pass on an update.

*(Jim Thorpe)*

### Deauville - LFRG

Public, IFR regional airport with >8000' RW 12-30 and ILS 30 app, VOR DME app for 12

1. IFR ops - straightforward. Deauville provides a good radar service for their class D zone and also the area around Cherbourg, radar vectors to the ILS 30 are the norm.
2. VFR ops - no problems. Have the Botlang for the area, like many fields the occasional local landmark is referred to, e.g. the "Normandie Bridge" point ED.
3. Airspace - note the French Prohibited zone over Le Havre! Also keep clear of Le Havre's ATZ coming down the coast

from the UK. Often parachute dropping C208s are whizzing up and down from there.

4. ATC - helpful, but check NOTAMs. LFRG had a time last winter of operating no-ATC, calls only in French from noon Saturday to noon Sunday.
5. Fuel - A-1 available and Avgas by Bowser truck. Accept all Credit Cards as payment. Do check Avgas availability. This winter, for the first time IIRC, NOTAMed as no-avgas from 15.12.05 - 15.2.06. Also, sometimes Avgas is not available in the lunch hour.
6. Airport - very nice facility. Marshaller parks you on hard apron right next to the terminal. There is a Minitel for WX and FPL. Small office where you pay landing fees. Public lounge. Good restaurant with terrace upstairs. No handling, landing fees are around €30-50 2-4t. Customs on site, no PPR needed. Always friendly and polite. Flying N-reg no VAT inspection nonsense to date.
7. Local Area - about 8km from the towns of Deauville and Trouville. Honfluer is nearby too. Deauville is a 'smarter' version of Le Touquet. Good shops and restaurants, great beach. Busy but not horribly so on summer weekends.
8. Transport - unusually, a corrupt taxi environment seems to have sprung up recently. It's the only French spot I know that has a third-world rip-off taxi thing going. You get in a cab at the airport, the fare should be €15-20 but the meter is hidden by a book or something, or already has €20 when you start and the driver wants €30 or €40. Agree beforehand or call the Tourist Office to check. *(Vasa Babic)*

### Texel - EHTX

Brand new hotel/restaurant/meeting centre about 100 yards east of the control tower.



All rooms with view on airfield. Aircraft parked within 50 yards of hotel room. Bikes available for rent during summer months. Very nice sand beaches and dunes. Most biking is on bike roads not accessible to cars. Very smooth grass runways, VFR only. Details on the Netherlands online AIP

<http://www.ais-netherlands.nl/> Airport chief Mr de Bruyn very helpful *(Dirk Dejonge)*.

Texel is an excellent place to visit and now with the hotel on the airfield I am sure it is even better. I can endorse the friendliness and helpfulness of the airport management. I spent several days there in 2004 (my third or fourth visit). The airport not only arranged a hire car for me but also took me to the garage to pick up the car. The fact I had forgotten my driving licence was overcome with a faxed copy sent by my daughter.

In a previous visit I arrived without booked accommodation. The airport manager spent considerable time finding somewhere for us to stay whilst we enjoyed lunch in the airfield restaurant. He then arranged for us to be taken to the guesthouse. As far as arrival procedures are concerned I have always approached via Den Helder and had no problem joining (VFR) either straight in or positioning to the East to join 'mid-downwind' - the standard Dutch procedure. Remember to obtain PPR by telephone to check airfield conditions - it can become waterlogged. *(Ian Chandler)*

### Malaga - LEMG

IFR Routing from ORTAC - F200, ORTAC UN866 LAGUL UN621 ARE UN684 DELOG R753 SNR B42 MAR MGA (this is a nice direct IPFS accepted route).

To cross the Bay of Biscay direct you need to use the upper airways with a MEA of FL200, in practice on this route I never requested climb above F180 and ATC were happy with that. I have crossed VFR at lower level and it's fine, you get helpful French Mil transit of the Biscay danger areas. Otherwise low level airways IFR along the French coast is required (e.g. A25 & R10).

IFR Alternates - filed: Grenada LEGR (50nm). Due to terrain at Grenada, it is also useful to plan Seville LEZL (80nm).

IFR Arrival - arrivals from the North are of the MARTIN xy type starting from the MAR VOR (30nm NW of LEMG). In practice I was radar vectored to the ILS from 60nm, on hand over from Seville Control to Malaga approach.

IFR Approach - ILS DME available for 32 and 14. 32 is over the sea, 14 is over terrain so GS intercept is at 14d 4900'. ATC helpful and friendly. It pays to set volume high, anticipate potential instructions and listen carefully to Malaga App; the controllers' English is good but pronunciation of waypoints stumped me a couple of times (mainly because I was unfamiliar).

# Obituary

## James Gilbert

April 28th 1935 – February 14th 2006

**Aviator and journalist who prized the freedom of the skies and loved confronting officialdom.**



James Gilbert was a towering figure in aviation journalism, a rebel who campaigned against the bureaucrats he saw strangling the freedom of the skies. A daring stunt pilot, performing in films and air shows, he flew well over 100 types of aircraft and wrote about each.

As editor and publisher of the monthly Pilot magazine, which he bought as a nearly defunct publication in 1972 and turned into the market leader, he encouraged a generation of writers to convey the thrill of flying. He was never daunted by articles of 6,000 or 7,000 words about flying the latest supersonic military jet or a humble vintage biplane. He combined a passion for aviation with a shrewd commercial judgment that made Pilot a lucrative property before he sold it five years ago.

As editor he pursued several campaigns to redress unfair prosecutions of pilots by the Civil Aviation Authority and to resist what he saw as the erosion of individual freedom to fly light aircraft by the ever-encroaching health and safety mindset of officialdom. In a celebrated case, he challenged the official findings of the inquiry into the crash of an RAF Chinook helicopter on the Mull of Kintyre in 1994, which blamed the dead pilots for “negligence”, a very serious charge which the evidence laid before the investigators did not, he felt, bear out beyond reasonable doubt. He forever after believed it to be a cover-up by the MoD.

James Campion Gilbert was born in Croydon in 1935, not far from what was then London’s principal airport. His father was a prosperous insurance broker at Lloyds. He hated his time at Radley, although rowing was a consolation. One day when the river burst its banks he ignored the school’s evacuation plan, borrowed a scull and rowed away across the flooded fields.

During National Service in the RAF he was turned down for pilot training because of poor eyesight, despite having learnt to fly on a Tiger Moth at the age of 17 on an RAF scholarship. He

nevertheless went on to become Britain’s runner-up national aerobatic champion in 1964, as well as an air display pilot and stunt pilot in such films as the First World War flying drama Aces High (1976) and the Second World War action movie The Eagle Has Landed (1976).

As a flyer he rejoiced in a particularly audacious manoeuvre in his Bücker Jungmeister, a prewar German biplane trainer complete with swastikas, in which he would touch down on the hard side, bounce off his springy undercarriage and flick the plane a full 360 degrees before setting it down again gently on the runway. To complete the performance, in which there was no room for error, he would give a Nazi salute as he taxied past the crowd.

He learnt his trade as a publisher in New York in the 1960s on the editorial staff of Flying Magazine. There he started to “test fly” dozens of old planes, catching the enthusiasm of their owners and admirers and leading to his first bestseller, The Great Planes (1970). He followed this with The World’s Worst Aircraft (1975), a hilarious account of aerial catastrophe and engineering folly, which became a cult classic.

A quiet family man with an impish sense of humour and a sharp intellect, Gilbert embodied old-fashioned British values. A free-thinking spirit within a conservative mould, he bristled at any sign of bureaucratic meddling or pomposity. He eschewed personal honours but delighted in seeing his contributors in Pilot win distinctions at the annual award celebrations during his long, enlightened editorship.

He is survived by his wife, Gena, and two sons and two daughters, the elder son and daughter from a previous marriage.

James Gilbert, aviator and journalist, was born on April 28, 1935. He died of cancer on February 14, 2006, aged 70.

© The Times, London 16 February 2006.

James was PPL/IR Europe member number 64.

### Pilots’ Talk

continued from page 13

Airport - GA Parking is at the GA terminal at the South or an Apron on the North (with the main Terminal in between). Both in use due to construction in the main southern GA area. Handling provided by Air Taxis +34 952 04 89 67. Nice people. Landing was €60 and handling €60 for a 421. Parking almost free and plenty of space on a peak New Year weekend. Servisair also in the same terminal. A whole lot of local car rental firms with good rates and good choice of both basic and fancy cars are nearby. Handling will shuttle you to the car rental places. Fuel is available by bowser truck. Accepted Shell Card. Anticipate 30-60 mins for fuelling.

Departures - no slot time required. Departures to the North are LOJAS type. Was given direct routing about halfway through the SID once clear traffic.

IFR return routing - F210, MGA B11 VTB R10 PPN G23 BLV T180 BELEN UT180 MOKOR UN867 AKIKI UM168 ORIST ASPEN NEDUL.

Note, that in the Madrid area, from VTB the B11 airway to DGO and BLV would appear to be more direct, but this was not available - rejected by Brussels and also when requested of ATC in flight (I think due to traffic, it is a low level airway close to Madrid Barrajas). Use instead the route VTB R10 PPN G23 GLV. (Report from visit 30/12/05, *Vasa Babic*)

### Airfield News

Andover airfield, Hampshire was placed on the market in June, consisting of 120 acres of industrial and office land and has been bought by Rosemound. The site which adjoins MOD land awaits the result of a public enquiry. At Brunton, Northumbria, the runways appear to be largely intact although not maintained. The Border Parachute Centre that operated from here has recently been forced to leave and is now looking for an alternative site. The odd hut survives along with a number of air-raid shelters. In the middle of the airfield is a camouflaged dome, accompanied by a number of huts. This site is associated with the electronic warfare range at RAF Spadeadam in East Cumbria and is known as SPACES: the Spadeadam Coastal Emitter Site. Presumably the EW emitter is housed within the dome. Cardington, Bedfordshire is the proposed site for a large warehouse development adjacent to the two airship hangars. This has caused much uproar locally and a campaign has been started to

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# LEVEL BUSTS SURVEY

## PPL/IR Europe in association with NATS



Many thanks to all of you that sent in your responses to the questionnaire that accompanied the DVD. The results were as follows with all percentages shown being a 'Yes'.

Question	% of respondents	
In the past 12 months have you been involved in a level bust, either as a pilot or passenger, caused by:	1. Correct readback by a pilot followed by an incorrect action?	14%
	2. Aircrew failing to follow a SID?	4%
	3. Incorrect readback by a pilot that has not been detected by ATC?	11%
	4. A pilot taking instruction addressed to another aircraft and not being detected by ATC?	11%
	5. Aircrew failing to change altitude setting when transitioning to or from altitude or flight level?	24%
6. Do you always write down clearances?	80%	
7. In the first example, 'Incident 1' did you clearly understand how the level bust occurred?	90%	
8. In the example of 'Incident 2' did you clearly understand how the level bust occurred?	83%	
9. Will the examples help you avoid similar mistakes?	89%	
10. Do you feel, after watching the DVD, that the likelihood of you committing a level bust has significantly reduced?	84%	

### Feedback:

"Send me more DVDs for other items - they are great."

"...there are two areas, clearly identified by this DVD, that cry out for closer scrutiny. One is altimeter setting procedure, the other is adherence to SIDs, in particular when ATC changes SIDs from that expected by the crew."

"I suspect a lot of the problems are that the clearances are not written down as they are received, but read back and then dialled into the altitude select. That few second delay would be enough to cause an element of confusion, especially where multiple instructions are received."

"DVD reinforced the critical aspects of level busts. Good, insightful, educative presentation."

"I found the DVD well produced and I think it will help in understanding and rectifying the issues. However, the material is mainly aimed at airlines operations and not fully applicable to single pilot IFR in a small aircraft. I do, however, congratulate NATS for including PPL/IR Europe members as recipients of this information. What would go a long way to increase safety would be to subsidise safety critical training and equipment (e.g. mode S) for non-airline operators."

"Will the examples help you avoid similar mistakes? - Yes, although the face to face presentation at LATCC last year helped more."

"A very effective use of DVD media, I thought."

"The DVD was definitely helpful."

"...a further DVD giving other examples of level busts through differing factors would be helpful in preventing me making the same mistakes."

"...the biggest risk in my experience is when the controller is busy and resorts to 'machine-gun' delivery and this encourages pilots, in an effort to help, also speeding up. Words are slurred and the likelihood of misunderstanding increased. Correct phraseology with careful delivery is vital and it is not professional to deviate simply because a frequency is busy."



### Pilots' Talk

continued from page 14

petition the council to deny planning permission. It has also kept the letters pages of the local papers busy! The developers are offering to restore Hangar No. 1 although it is believed that this will just be a lick of paint. The hangar is in a poor condition and was occupied by the Airship Technology Group until they recently went into receivership. The Met Office outpost and their modified barrage balloon remain in an enclave on site.

Although much of the airfield site has been quarried away, Milfield, Northumbria is home to the Borders Gliding Club who operates from two grass strips. A well looked-after hangar and clubhouse building is the focal point for the club and it is named The William Brodie Hangar. (*Airfield Research Group*)

## WANTED!

A PPL/IR Europe member with an interest in aviation developments and the willingness to donate just a few hours a month to write the Intelligence Reports column for Instrument Pilot. Regular press releases and suitable material is forwarded by the editor, it's just a matter of researching and compiling the interesting stuff. Have a look through some back issues of IP to see the type of column we are looking for. If you are interested please ring David Bruford on +44 (0)1823 461 310 or email him at [editor@pplir.org](mailto:editor@pplir.org)



By  
**Alain Toogood**

## *Contract for in-orbit validation of Galileo system*

According to Aerospace & Defence News, the successful launch of the GIOVE-A satellite on 28th December 2005 and the acquisition of the first 'Galileo' signal on 12th January 2006, Galileo is now well on its way with the signing of the contract for the development and in-orbit validation (IOV) of the constellation's first four satellites.

On Thursday 19th January, the European Space Agency (ESA) and Galileo Industries GmbH, the European company steering a consortium of over a hundred firms, will sign a EUR 950 million contract that will pave the way for the operational deployment of Galileo.

The signing ceremony will take place at the Federal Ministry of Transport in Berlin in the presence of the German Federal Minister of Transport, Building and Urban Affairs Wolfgang Tiefensee, ESA's Director General Jean-Jacques Dordain and several top representatives from industries involved in the project (EADS, Alcatel, Finmeccanica, Thales, GSS and Galileo Industries).

*"With this contract, we are translating a great European project into a mini-constellation of four satellites backed by an extensive network of ground stations providing solid grounds upon which the concessionaire will develop the full operational Galileo constellation"*, says ESA's Director General Jean-Jacques Dordain. The four satellites are the minimum required to guarantee precision positioning and synchronisation over the selected show-case sites.

Günter Stamerjohanns, Chief Executive Officer of Galileo Industries, added that *"...with the signature of this contract a very important milestone in view of the completion of this unique European Technology programme will be reached"*.

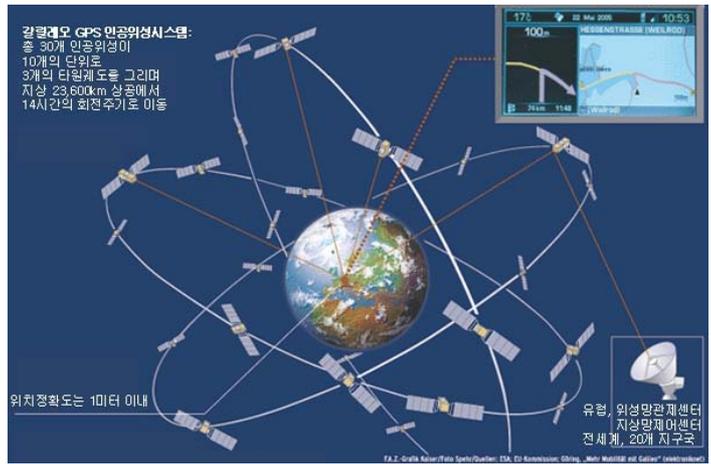
Following the preliminary authorisation to proceed with EUR150 million of work signed on 21st December 2004, it is now the overall IOV phase contract that is going ahead, drawing on ESA and EU funds accessible under the GalileoSat programme. The launch contracts will be negotiated during the course of 2006.

The IOV phase is already well under way, with GIOVE-A, the first test satellite launched on 28th December aboard a Soyuz rocket from the Baikonur cosmodrome. To make sure that this key IOV component is a success, two satellites have been ordered from European industry.

Following IOV, the full deployment phase will cover the manufacture and launch of the remaining 26 satellites plus the completion of the ground segment comprising a worldwide network of stations and service centres.

All laudable stuff. The publicity machine states: *"A joint ESA/EU initiative, Galileo will be the first global navigation satellite system geared to civil-user needs offering continuity and guaranteed services in addition to the existing and functional US system."*

*Sceptical as I am, Galileo will offer Europe political independence from the dominance of the US so that if Europe ever declared war on the US we would have our own SatNav system; well, for the few minutes from the time of the declaration of war to the time that the US took out all the Galileo satellites. Sorry – unnecessary sarcasm...*  
**Alain.**



Yep, this Galileo stuff all makes sense to me

## *Bizav leaders urge EU to withdraw insurance regulation*

European Union (EU) Regulation 785/2004, which went into effect April 30th 2005 and requires minimum aircraft insurance levels for war risk and third-party liability, has resulted in "severe financial impacts" for operators far greater than expected, according to the International Business Aviation Council (IBAC). Donald Spruston, director general of IBAC, sent a formal letter to EU Director of Transport Daniel Calleja Crespo, urging an immediate review of the regulation. "The industry considers the insurance levels to be out of proportion to the risk and unwarranted because of the significant burden and negative impact on the efficiency of non-commercial air transport operations," Spruston wrote in the June 2nd letter. "The aviation insurance underwriters have established fee structures that substantially increase the annual costs of insurance to provide third-party liability and war risk insurance beyond the historical limits." Exacerbating this issue, Spruston said, is the "inconsistent application" of the regulation by EU member states. "Therefore, the business aviation industry respectfully requests a full review of the minimum insurance requirements." (*Aviation International News*)

## *German regulation regarding conditional clearances effective January 2006*



The German CAA equivalent DFS has a reputation for absolute clarity. So as to maintain this status they have really clarified conditional clearances, so if you are going to be in German airspace soon, be aware that the new regulations state:

If the issuance of a clearance depends on another aircraft or vehicle movement: a conditional clearance may be issued for expeditious traffic handling.

The following conditions shall be met:

1. the clearance relates to the immediately next aircraft, vehicle or taxi movement;
2. the aircraft or vehicle has the object concerned visually identified and is able to maintain visual contact;
3. the controller has the objects involved in sight;
4. the instruction is issued in a clear and unmistakable manner;

5. attention has to be paid, in particular that the pilot or driver of the vehicle reads back the instruction correctly;
6. the execution of the instruction shall be monitored;
7. traffic information shall be provided, as appropriate, in accordance with MO-ATC, items 541.2 and 542.1.

Note: Information that could prevent misunderstandings includes, for example: aircraft type or colour. The report "traffic in sight" shall be obtained:

1. before entering or crossing a runway via rapid exit taxiways;
2. prior to a take-off which depends on an aircraft using an intersecting runway;
3. for aircraft which are both in the air;
4. if there is any doubt that the aircraft or vehicle has the object concerned in sight.

## Notes for extended squitters

For you chaps that understand the really technical stuff, please note the following. One nice thing about this job is that I don't have to understand it to report it. The following details the equipment likely to be required for light aircraft and B747s from 2005 to 2020.

### Aerodrome Operations

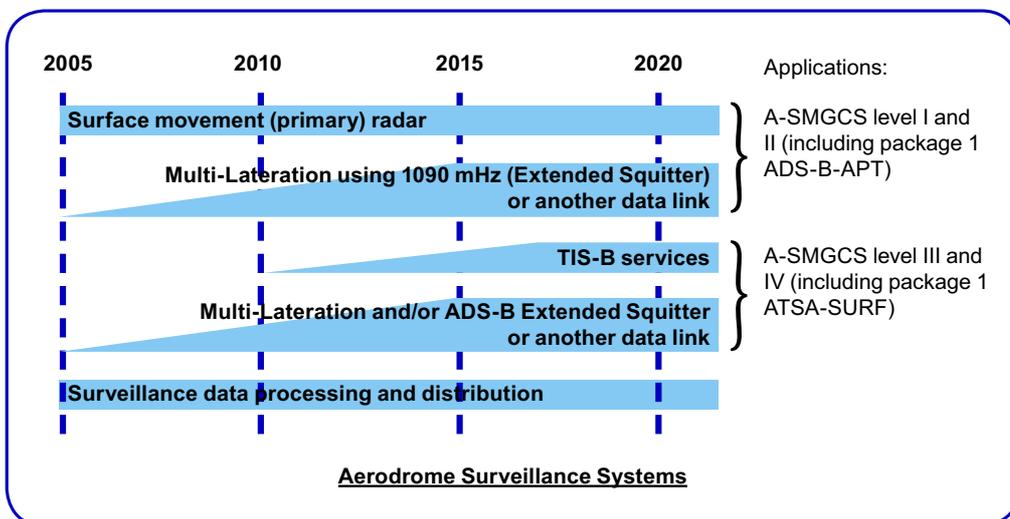
At the aerodrome, the surveillance strategy is based on two phases (see diagram below):

- ⊖ The implementation of A-SMGCS level I (which may include ADS-B Package I, ADS-BAPT (Airport) application) and II from today onwards enabled by SMR and Multi-Lateration systems. From 2010, when ADD is required by aerodrome operations, a possible upgrade of the Multi-Lateration to deliver ADD via ADS-B may be necessary;
- ⊖ Where airport operators foresee a benefit of A-SMGCS level III (which may include the ADS-B Package I, ATSA SURF (Airborne Traffic Situation Awareness on the airport surface)) and IV1 from 2010 onwards. This may require an ADS-B and TIS-B infrastructure.

### Aircraft Systems

From an airborne perspective, the surveillance strategy is based on three steps, these are:

- ⊖ continuing the use of SSR or SSR Mode S systems for ground surveillance radar or Multi-Lateration systems. This means that no additional equipment is foreseen on the aircraft in the short term;



- ⊖ the implementation of ADS-B Package I ASAS applications from 2010 onwards which will require the aircraft to transmit information to other aircraft and ground users. This is enabled by ADS-B using 1090 MHz Extended Squitter or other datalinks. In addition, an airborne SDPS and display system will be required;
- ⊖ the implementation of ADS-B Package II ASAS separation applications from 2015 onwards. The enabling techniques are the same as ADS-B Package I, however there may be higher integrity requirements on the information presented to the aircrew which may result in an upgrade of the avionics.

## Belgocontrol considers the paperless AIP



Belgocontrol is investigating the possibility of discontinuing the production of its AIP on paper. It considers that "...the cost related to the paper production and distribution process is simply too high and can never be compensated for by subscription revenues. At least not when you have a limited customer base and want to keep the subscription rate at a more or less acceptable level. It is clear that eventually, such decision can only be taken when valid alternatives are in place; in our specific case, the AIP will remain available on CD-ROM (subscribers) and via the EAD website [www.ead.eurocontrol.int](http://www.ead.eurocontrol.int) (free registration). In addition, plans are in progress to allow Internet access for registered users via our company's website. We appreciate that for certain specific tasks, some users may still prefer to have the printed material. However, we feel that this requirement is adequately met through the availability of PDF-formatted files for each AIP-section (incl. AMDT, SUP and AIC) allowing users to print exactly what they want and when they want it."

## Changing places...

As you may recall from the last issue, Jeppe Sørensen 'retired' from compiling the Eurostuff column and as you can see Alain has stepped into the breach this month. However, from the next issue John Pickett, perhaps better known in the industry as J Keith Pickett, will be taking over. John is a retired Staff CAA Flight Examiner with over 10,000 flying hours, all in general aviation including 5,000 hours in IR training. Prior to being a Staff Flight Examiner, John worked in the policy department of FCL CAA and has also served as the Safety Officer, Operations and Personnel Licensing with the Hong Kong Government. He is also a Qualified Air Accident Investigator. We welcome John to the editorial team and look forward to benefiting from his vast experience.



## *NATS DVD raises serious questions*

Thank you for DVD. I have now replied to the survey.

I was also interested in the part of the DVD that talked about the Mode S transponder system. There were a couple of points in this presentation that I would like to comment on:

1. During the presentation the statement was made that “by waiting for technology to mature, NATS has developed and pioneered a system that leads the world in safety” or something to that effect. How can NATS “lead the world” when Mode S was in fact developed in the USA and not in Britain and has been fully in force in the United States for some time now while in Britain, Mode S is still being introduced (I still have to find an ATC outside the London area that can receive Mode S signals.)
2. In the United States both sides of the bargain are being kept: a) ATC gets more detailed information about the aircraft, and b) in return the ATC radar head sends to the aircraft information about traffic (and also now I think, info about weather).

I installed a Mode S transponder and coupled it to a Garmin 430. In the States I had seen this configuration giving useful traffic information on the Garmin display that greatly assists the pilot to increase safety. However for over a year now I have been flying with the indication “TRAFFIC UNAVAILABLE” on my Garmin screen. I was so concerned that I spent additional money having my system checked to ensure it was working ok. Also I kept asking both Garmin and NATS when they would have the traffic return, and was told that it would be phased in over the year (2005). Then last November I was told “It ain’t going to happen”. I was told that ATC wants to have the additional information about the aircraft (including its ID so that airways charging can be made easier). However NATS feels no inclination to spend any additional money to upgrade its radar heads to send the traffic information reply back to the aircraft.

This sort of gives me the idea that the whole mode S thing in the UK is not about safety but is more about regulation and possible fee charging. This all sort of saddens me and makes me feel very disillusioned about our NATS.

Has any other PPL/IR Europe member installed Mode S believing it would increase their safety only to find that they have wasted a lot of their money?

**Colin Walker, Member 665**

## *Cloud tops data?*

In Instrument Pilot 53 Peter Holy mentions a service from the University of Basel and says: “It is possible to obtain cloud tops data, in both actual and forecast form. Actual data can be obtained from e.g. the Wyoming site mentioned earlier, from the balloon ascents. These are obviously accurate but are generated only at 00:00Z and 12:00Z. Forecast data can again be obtained from GFS: the clearest one I have found is <http://pages.unibas.ch/geo/mcr/3d/meteo/> which under Animated Soundings offers a forecast which (from the temperature / dew point spread) clearly shows the vertical cloud profile.”

I have visited the site but could someone explain how to interpret the graphs?

**Sigurd Reinton, Member 304**

### *...and in reply*

You don’t have to - just use the “meteograms” rather than the “Animated Soundings” and you will get, amongst other things, cloud cover both vertically and horizontally.

**Christof Edel, Member 740**



## **Executive Committee meeting at Oxford Airport – 26th October 2005**

### *PPL/IR Europe to lobby for approval of a minimum fit of HSI*

With a 1000’ freezing level, strong winds and the likelihood of snow, most of the attendees drove to Oxford but four aircraft battled through the perfect actual weather. The old stalwarts, Paul Draper, Jim Thorpe, Paul Kelly, David Bruford, Ian Chandler, Roger Dunn, Nigel Everett, Ole Henriksen and Anthony Mollison were joined by new recruits Timothy Nathan, Vasa Babic, Peter Bondar, Ian Harnett and Stephen Dunnett who have recently offered their time and efforts to share the ever increasing workload that seems to come PPL/IR Europe’s way. There is one additional new member, Derek Fage, who couldn’t attend due to serious skiing commitments, who has signed up as the new Webmaster. If you want to put faces to these names have a glance at page 19.

An update on the Single European Skies project came from Paul Draper who reported that aircraft below two tonnes remained exempt from Eurocontrol charges but might have to pay navigation charges, particularly in the UK.

The committee discussed the possibilities of increasing our membership base by attracting ‘sub-airline’ IFR pilots, IMC, German PPL/IRs and the new generation of affluent but relatively unskilled purchasers of modern light aircraft. Peter Bondar reported that 1,500 such aircraft were ordered for the current year for delivery in Europe, and about 50% of these were intended for business and commercial use. Peter agreed to investigate the recruitment possibilities amongst the purchasers of these aircraft.

On PRNAV/Mode S/GPS Approaches - Jim Thorpe reported that PRNAV would be introduced into the London TMA soon. The aircraft, the pilot and the operator would each require prior approval; exemptions would be difficult to obtain and of limited practical value. High end GA aircraft would probably qualify but pilot training and an approved operations manual would also be necessary. Jim suggested that we should lobby for approval of a minimum fit of HSI, a two axis autopilot and a Garmin 430 or similar. Some thought this too high a standard for many members. Jim agreed to consult by way of the website forum.

Six trial GPS approaches are due to be published soon. EC members were concerned that in spite of several requests from PPLIR/Europe there has been no consultation. Nevertheless they wish the project, which stemmed from a PPL/IR Europe initiative some two years ago every success.

Dreams of a simplified European IR were squashed as Anthony Mollison reported that the minor changes agreed to the syllabus would be implemented this year. However, the changes were not substantial except within the theoretical syllabus where the content will reduce by 20-25% by removing questions like: “How many flight attendants does it take to change a seat belt light bulb.” On the down side however, candidates still have to attend a residential course and take the theoretical knowledge exam at Gatwick.

On the financial side, Paul Kelly presented the accounts which were looking healthy and with other committee members the following affiliation fees were agreed for the coming year: Europe Air Sports £1,020, GASCo £500, GAAC £300, Royal Aero Club £200 and AOPA £192.

Much else was discussed but mainly administrative and organisational matters, the results of which will be explained at the AGM on the 6th May. Be sure to let Ian Chandler know in good time if you are able to attend.



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“ I believe I have assembled the smallest and lightest combination on offer. It can deliver internet weather, flight plan filing and printing of approach plates and plogs anywhere via 3G ”

**Tablet computers for aviation use**  
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advance with a Fujitsu specialist that this would be OK. In the event their assurances were incorrect. It emerged that there are two varieties of type 2 card slots; a CF type and a PC type. To cut a long story although there was a somewhat unsatisfactory technical solution Fujitsu washed their hands of the problem. ATG, their dealers, who been present when I asked the key question, acknowledged the error and accepted the machine back for full refund at considerable inconvenience. I can therefore heartily recommend ATG. I find it less easy to recommend Fujitsu although the machine itself was attractive and seemed to perform as promised in other respects.

I then purchased a Flybook. This computer endeared itself to me straightaway by having a short paper manual. I hate equipment which has all information on a CD which may not even load. I soon had software loaded on the Flybook via an external DVD. This included Jeppview for approach plates, Navbox for flight planning and Skybound. The latter is the software and hardware which enables me to download and update any of the three sizes of data card which my avionics fit uses. With a Garmin 430, a Garmin 155 and the MX 20 MFD in the panel there are four, and potentially five different data bases; you could bankrupt yourself keeping current!

I doubt that I would ever want to update data cards away from home but it is convenient to keep all aviation related software on a single computer.

Access to the Internet was also quickly functional via my wireless LAN at home. The Vodafone GSM card was bit more challenging mainly because there was no signal. I had to travel from my rural location (where Orange and T mobile work



*Fujitsu Siemens Lifebook P1510 occupying the right hand seat of Jim's Bonanza*

fine) into the nearest small town in order to get a usable signal. That established, the software was easy to set up and I soon had good internet access with download speeds that seem comparable to my broadband at home. It remains to be seen what sort of coverage Vodafone provides in practice.

I have also purchased a tiny portable printer the Pentax Pocketjet which measure only 2" by 1" cross section and is 7" long. In theory at least this connects via Bluetooth. Bluetooth in my very limited experience is still pretty shaky technology and as yet I cannot get this to work. However with a USB cable quite acceptable printed approach plates have emerged on the sheets of thermal paper. Those old enough to remember thermal fax paper rolls will recoil with horror but the technology has moved on and this paper is perfectly adequate. I cannot as yet wholeheartedly recommend this printer but I am pretty confident of the concept and I hope to get it fully functional soon.

I therefore believe that I have assembled the smallest and lightest combination currently on offer. It can deliver internet weather, internet based flight plan filing and printing of approach plates and plogs anywhere connecting via 3G, a regular mobile phone, hot spots or a land line phone socket. This is all contained in two

small boxes, possibly without, but certainly with, an absolute minimum of cables weighing in at a little over 1kg. I guess this has cost the best part of £2000 at retail prices including VAT. Whether this is worthwhile is a personal decision. It is

perhaps double the cost of much larger and heavier portable equipment which could deliver similar functionality. My personal experience was that in reality, considering everything else I had to cart about between the aircraft and the hotel, I simply could not be bothered with my previous bag of laptop bits and they stayed in the aircraft or at home.



*The Pentax Pocketjet provides one of the smallest printing solutions available measuring just 2" by 1" cross section and 7" long*

I should also mention that I have tried upmarket mobile phones and found them unsatisfactory for internet access because of the screen limitations. I have some hope that this new set up will occupy a permanent place in my flight bag but only time will tell.

For more information see [www.pentaxtech.com](http://www.pentaxtech.com) (Portable printers), [www.flybook.biz](http://www.flybook.biz) (Flybook), [www.fujitsu-siemens.com](http://www.fujitsu-siemens.com) (Lifebook), [www.homebriefing.com](http://www.homebriefing.com) (Online flight plan filing), and [www.atg-it.co.uk](http://www.atg-it.co.uk) for a helpful Fujitsu dealer.



*Fujitsu convertible and A4 table side by side*

